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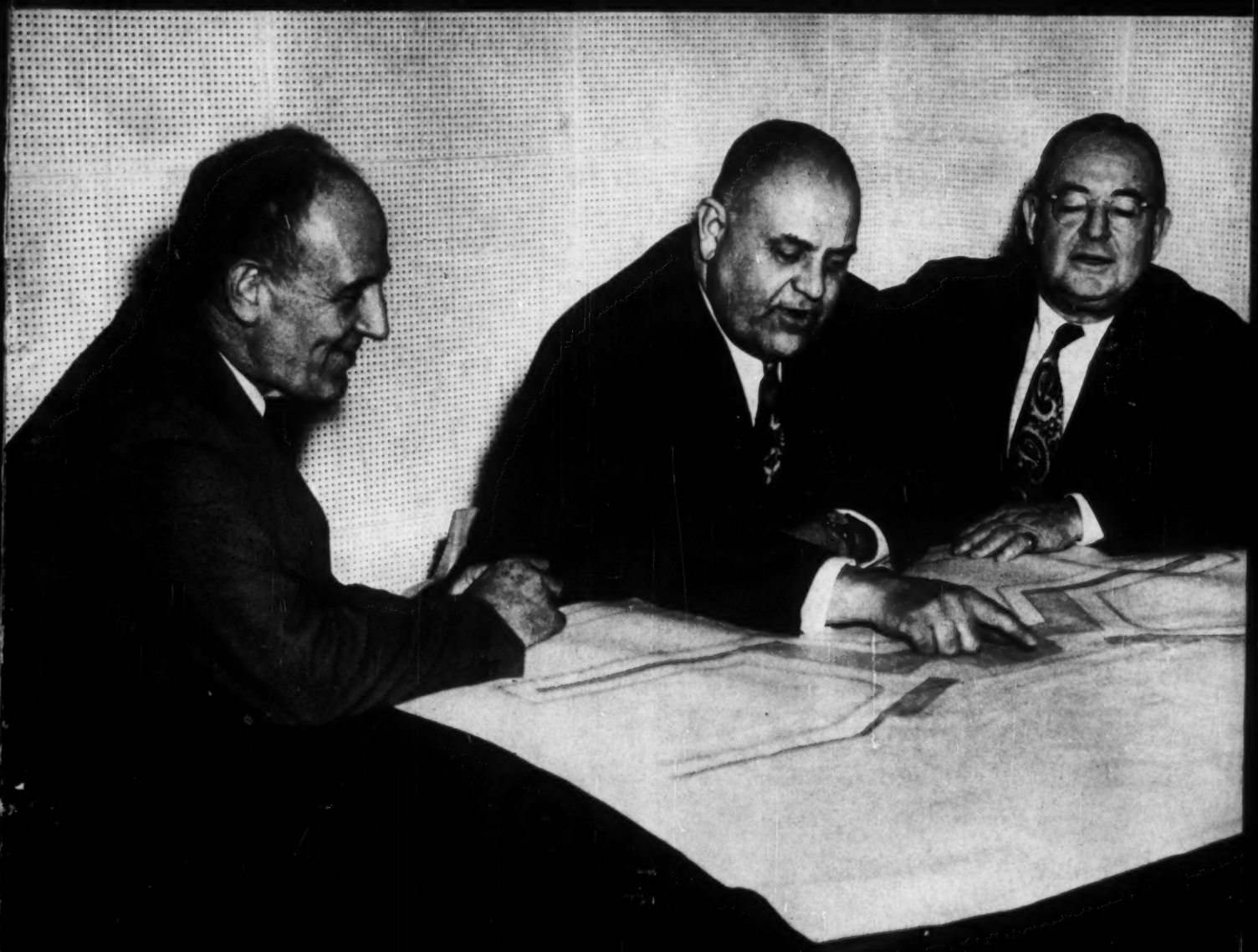

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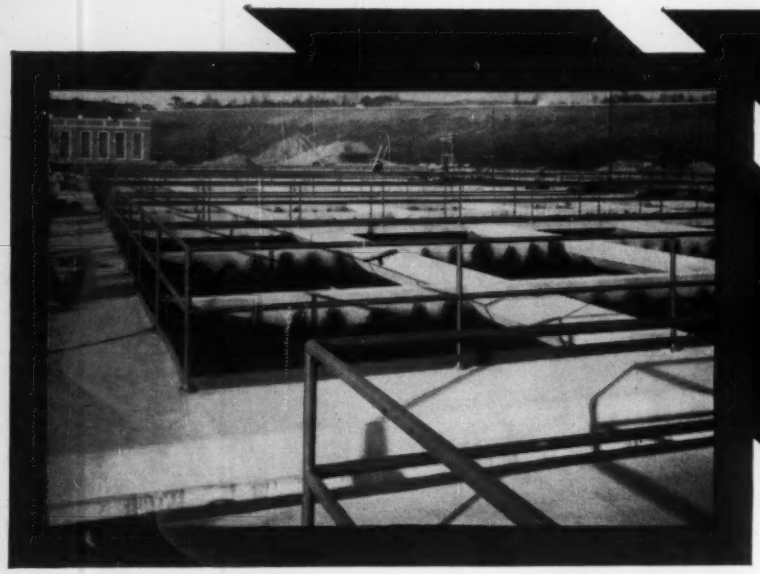

In Cleveland's Sewage Disposal Improvement Program . . . WROUGHT IRON PIPE stands guard against corrosive attack

There's plenty of evidence in Cleveland's Southerly Sewage Disposal Plant improvement program to show that the City's planners put a great deal of emphasis on economy of operation. One outstanding example is the extensive use of wrought iron pipe. More than 115 tons of this corrosion-resistant material was installed in the following services:

Sludge digestion and elutrition tank piping
Cold water lines—1" to 2½"
Downspouts and leaders
All heating piping
Handrailings
Blower lube oil piping
Perforated pipe diffusers
Expansion tank piping
Air piping
Air intake piping
Diesel oil piping
Exhaust gas piping

The entire program is supervised by City of Cleveland's Director of Public Utilities, Emil J. Crown, and is under the direction of Commissioner of Engineering, G. W. Hamlin, and Commissioner of Division of Sewage Disposal, G. E. Flowers.

The corrosion hazard in each of these services is well recognized. Many engineers, from all sections of the country, can certify how effective wrought iron pipe is in combating the condition, and providing long, economical life. Our bulletin, *Wrought Iron for Sewage Treatment and Disposal Installations*, discusses these, and other services, and documents wrought iron pipe's outstanding performance in each.

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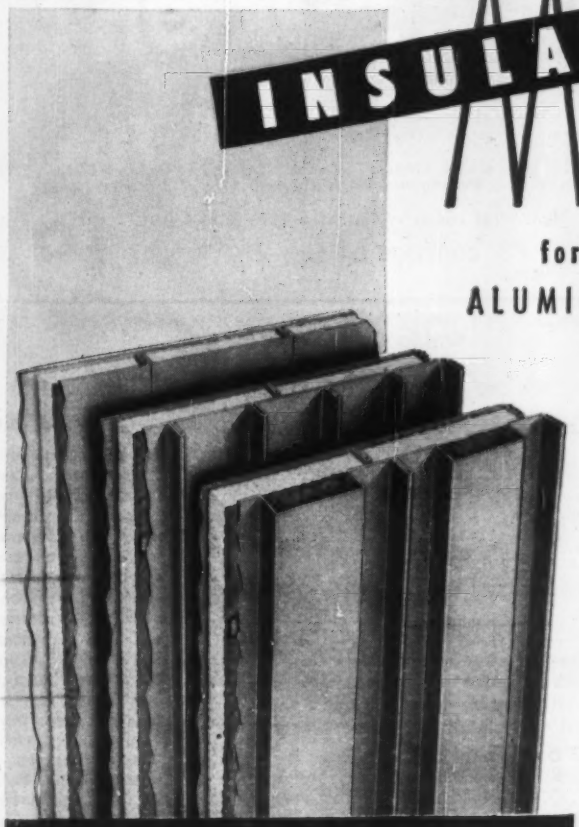

Metal curtain walls are now being employed extensively in new buildings of virtually every type . . . modern, permanent structures with bright aluminum or stainless steel exteriors are appearing all over the country. Enterprising architects are not only giving their clients the benefit of this low-cost, light weight curtain wall construction, but are achieving striking design effects in over-all metal wall exteriors as well as in combinations of metal wall and brick, glass block, and other materials. In this type of construction, important building economies are realized through lower material cost, lower labor cost, and the cumulative advantages deriving from reduced construction time . . . buildings can be quickly enclosed with Insulated Metal Walls—even under low temperature conditions which would preclude masonry construction. Mahon Insulated Metal Walls are available in the three exterior patterns shown at left ... the Mahon "Field Constructed" Fluted or Ribbed Wall can be erected up to sixty feet in height without a horizontal joint—a feature of Mahon Walls which is extremely important in powerhouses, auditoriums or other types of buildings where high expanses of unbroken wall surface are common. See Sweet's Files for complete information, or write for Catalog B-55-B.

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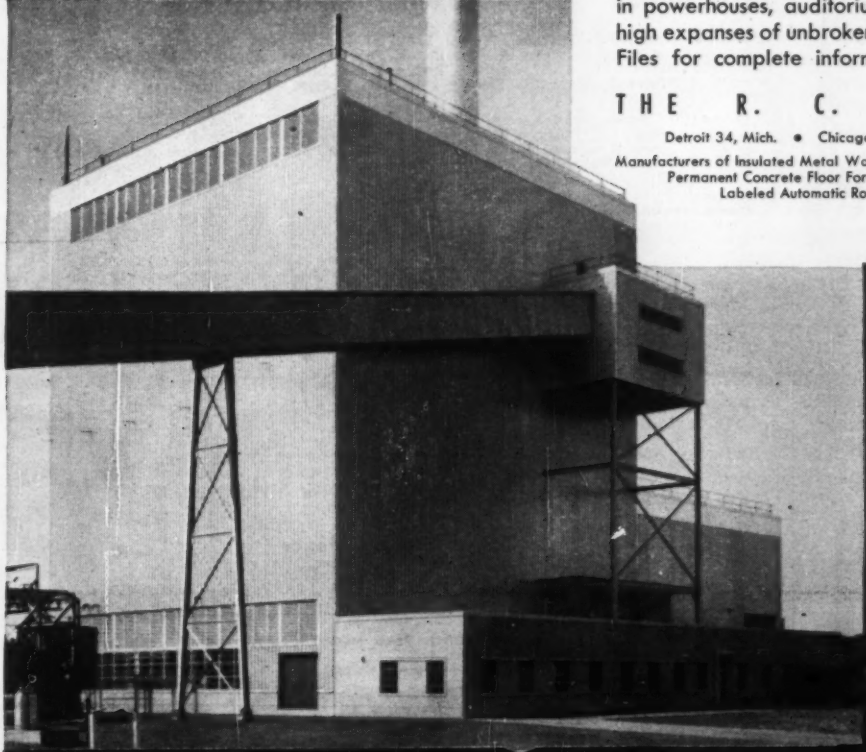
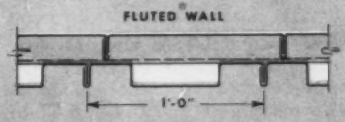
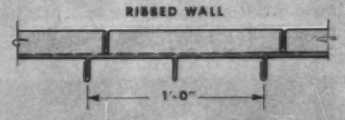


THREE EXTERIOR PATTERNS

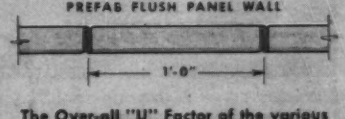
FLUTED WALL



RIBBED WALL



PREFAB FLUSH PANEL WALL



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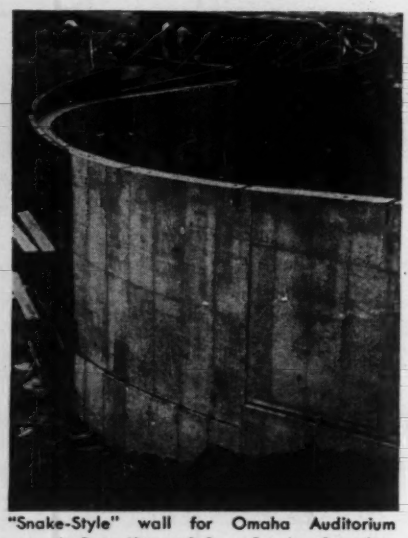

"Snake-Style" wall for Omaha Auditorium grounds. Peter Kiewet & Sons, Omaha, Gen. Con.

Symons Forms on Serpentine Retaining Wall

Symons Forms were used exclusively to form this serpentine retaining wall which is 20 feet high at the highest point and slopes to 8 feet high at the lowest point. These walls were constructed to facilitate parking on the grounds of Omaha, Nebraska's new city auditorium. Symons Forms were used for 30,000 square feet of forming on this job.

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Robert F. Boger
Publisher

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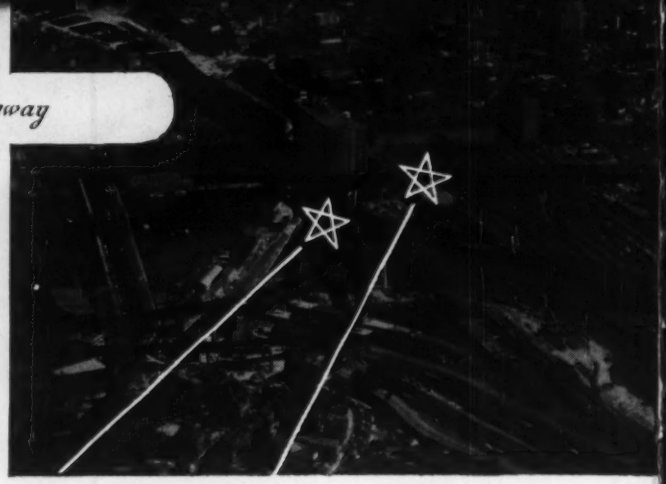
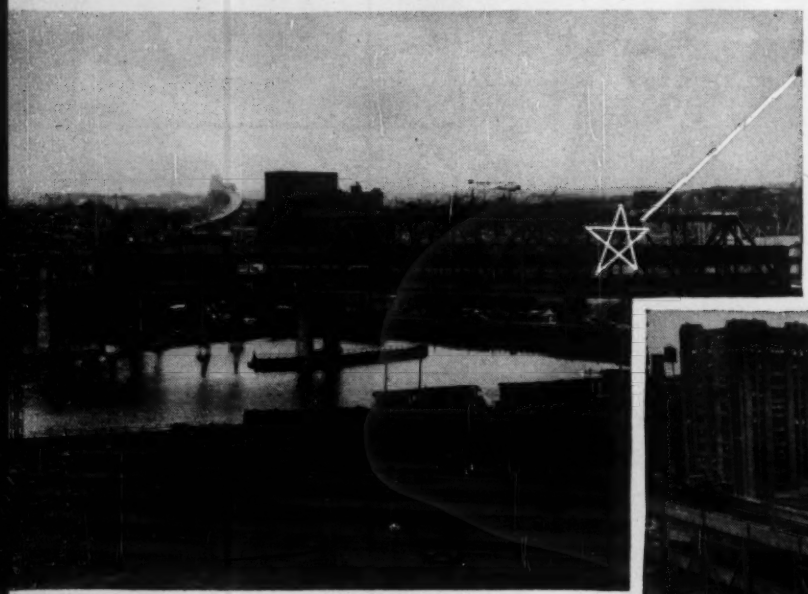
On these two sections of Boston's Arterial Skyway

6,500 tons of steelwork
fabricated and erected by
AMERICAN BRIDGE

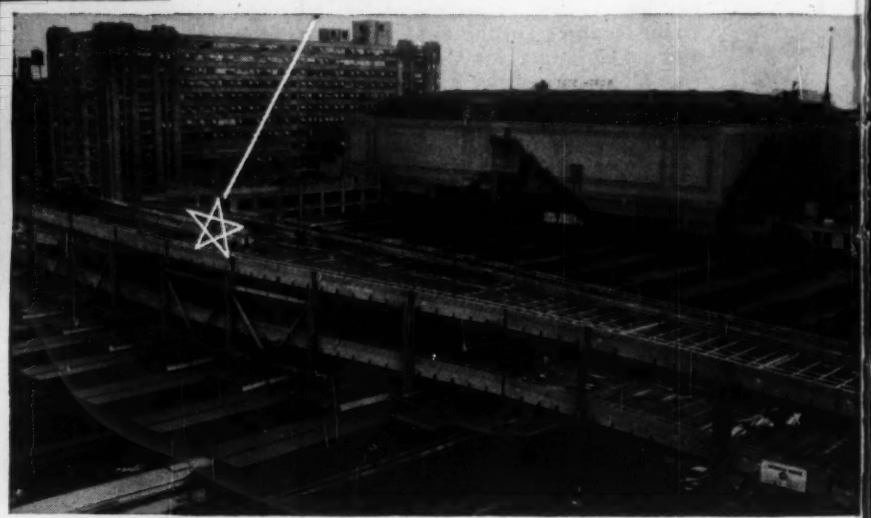


Aerial by Arber-French



LEFT: This new double-deck bridge carries the Boston Arterial Skyway across the Charles River to connect the Haymarket Square, Embankment Road, and Mystic River Bridge sections of the Central Artery Expressway.

BELOW: This 1,313′ double-deck viaduct carries the Skyway from the Charles River bridge over the North Station tracks of the Boston & Maine Railroad to make the Embankment Road connection.



Owner: Commonwealth of Massachusetts, Department of Public Works.

Plans and Specifications: Charles A. Maguire & Associates and Fay, Spofford & Thorndike.

Fabricated and Erected by: American Bridge.

■ While other cities talk about their traffic headaches, staid old Boston is actually doing something about the problem.

The first link in the Hub City's $110,000,000 Central Artery expressway has now been completed. Included in this part of the stupendous Skyway is a new bridge over the Charles River and a connecting viaduct which leads off to Embankment Road.

The steelwork for both of these big, double-deck structures was fabricated and erected by American Bridge.

1,900 tons of steel went into the Charles River bridge which is a through truss span structure 375′ long.

And 4,600 tons more went into the long connecting viaduct leading to Embankment Road. This viaduct is a girder and beam structure 1,313′ long. It is composed of 25 spans, 39 to 79 ft. long, supported on 24 steel bents. It was built over the railroad tracks and sheds of the Boston & Maine Railroad at the bustling North Station.

Despite the limitations imposed by the congested area in which the work was carried on, both jobs were handled smoothly, safely, speedily . . . and with minimum inconvenience to anyone. But that should be expected . . . for American Bridge has the fabricating facilities, erecting equipment and technically trained personnel to handle any type of steel construction with exacting precision, thoroughness and speed . . . any time, anywhere.

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WHEN I. B. M.'s new Kingston, New York, plant goes into operation next year thousands of gallons of chrome plating, cyanide and acid and alkali solutions will be piped through this three-barreled industrial waste line to a nearby treatment plant.

That's why new Amvit Jointed Vitrified Clay Pipe was used. It can take it!

The Amvit Joint is made of a new acid resistant plastic material with rubber characteristics dielectrically cast on the pipe. Like the pipe, the joints will not be harmed by any condition of underground service. And it's root proof.

Amvit Jointed Clay Sewer Pipe is just one of the many products manufactured in our plants across the nation. American Vitrified Products Company also produces concrete pipe, clay pipe, flue liners—both glazed and unglazed, and clay liner plates.

For more information, write or call American Vitrified Products Company, National City Bank Building, Cleveland, Ohio, or our office nearest you.

Photograph by Doug Campbell

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170 cu. yds. per hour on 1600-ft. cycle

Tulsa contractor averages 170 cu. yds. hourly with TD-24s and B-250 INTERNATIONAL scrapers on 1600-ft. cycle while helping cut 24 per cent off length of Oklahoma highway

The D. W. Falls Construction Company of Tulsa holds the prime grading contract for 7.6 miles of Oklahoma State Route No. 20 between Hominy and Ralston. They were able to make cost-cutting short cuts in earthmoving operations on the project that cut travel distance 24 per cent by using three INTERNATIONAL TD-24 drawn B-250 scrapers moving 27 cubic yard-heaped loads, and push-loaded by a TD-24 crawler.

Take it from Supt. Bob Derington:

"It's really surprising how much dirt these big scrapers will move per day. Under fairly good working conditions, each unit gives me a day-after-day average of 170 cu. yds. of dirt an hour while working a 1,600-foot cycle."

You can get pay-off performance by hitching INTERNATIONAL scrapers to the TD-24—still the Champ of the crawlers with 161 drawbar horsepower. That's the kind of hook-up that loads, hauls and spreads faster than any other combination . . . day after day . . . year after year. Just call your INTERNATIONAL Industrial Power Distributor for demonstration proof. He'll bring the combination you specify anywhere, anytime so that you can see why INTERNATIONALS make every load a payload.

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SMOOTH-WORKING TEAM. Four INTERNATIONAL TD-24 crawlers and three B-250 scrapers delivered a total of 510 cu. yds. hourly on the 1,600-foot cycle for D. W. Falls.

TD-24 POWER FRONT AND BACK PUTS these kinds of 27 cu. yd.-heaped loads in the INTERNATIONAL B-250 scraper in a matter of seconds for D. W. Falls on the company's 7.6-mile project requiring 250,000 cu. yds. of excavation.

EASY, FAST HAULING of heaped loads is assured with this equipment combination. The B-250 scraper requires minimum drawbar pull and has a low center of gravity that gives outstanding stability on side slopes like this.

CARBIDE INSERT? or MULTI-USE?
LOCATION: New York-Buffalo Thruway, West Nyack, N. Y.
OPERATING CONDITIONS: Drilling 36" lift holes through trap rock and granite gneiss.

Geo. M. Brewster & Son, Inc., Bogota, New Jersey, pushes deep-hole drilling costs down with TIMKEN® carbide insert bits

WAGON-drilling 36-foot lift holes through trap rock and granite gneiss was the job facing Geo. M. Brewster & Son, Inc., on the West Nyack section of the New York-Buffalo Thruway.

As is usual in cases like this, Timken® *carbide insert* bits proved the most economical. They give highest drilling speeds and lowest cost per foot of hole in extremely hard and abrasive ground—especially where it is otherwise impossible to drill out full increments of steel. They're most economical for small diameter blast holes and constant gage holes, too.

But in ordinary ground, where Timken multi-use bits can drill out full increments of steel, *they* cut drilling costs even more.

It takes *both* bit types to solve *all* drilling problems. When they're Timken bits, both types are interchangeable on the same steel. It's a quick and simple matter to switch from one type of Timken bit to the other—as quick and simple as taking one bit off the steel and screwing on another. And there are many different sizes and designs of Timken bits in each thread series, to fit all drilling situations.

All Timken bits are made from electric-furnace Timken fine alloy steel. And all have special shoulder unions—a Timken Company development—that save the threads from drilling impact damage.

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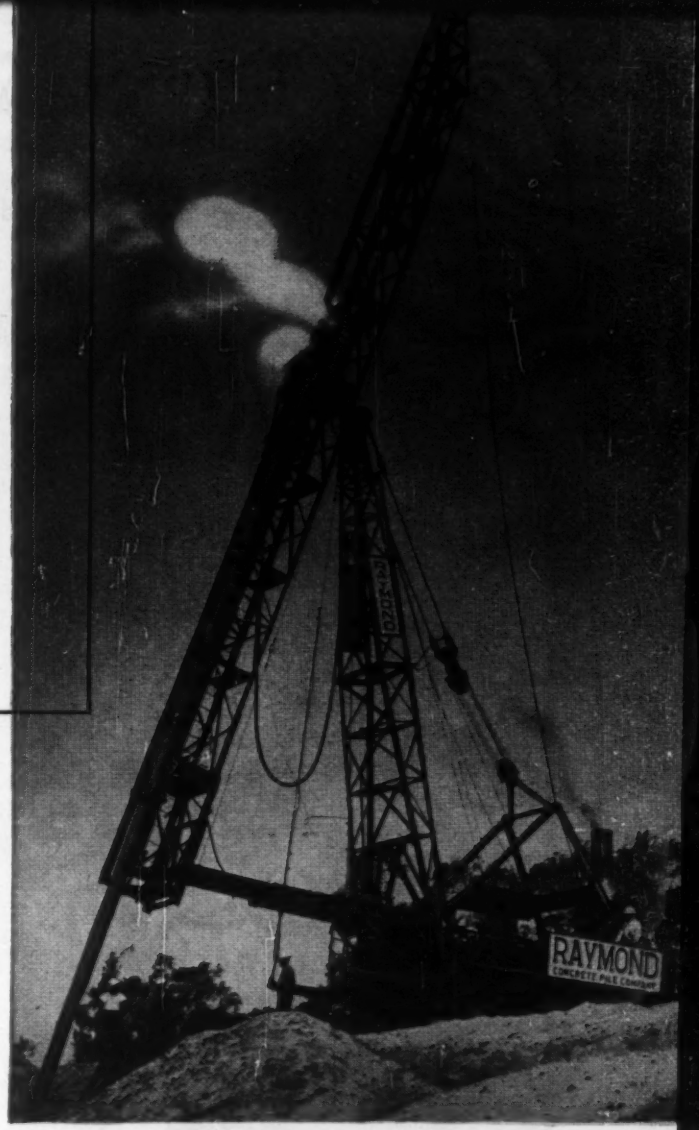

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READER COMMENT

Confused on Bar Splices

SIR: After reading DiGiovanni's comment (ENR Dec. 23, p. 6) about the concrete rigid-frame failure at Coronado (ENR Nov. 11, p. 36) I'm confused.

By rotating DiGiovanni's "good-practice" retaining wall 180 deg one sees the same condition as in his "not-recommended" rigid-frame! A section of plain concrete A-A can be drawn on each of the "good-practice" sketches.

Does the answer lie in initiating a standard practice or method of indicating on drawings that bars are to be enmeshed on a single line?

RICHARD C. GERKE
San Marino, Calif.

Trends in Terminal Design

SIR: The many readers of ENGINEERING NEWS-RECORD should find the Nov. 18 article on terminal buildings of value as a factual record of what is being accomplished. In addition, this article should serve to point up the fact that airport terminal building design is by no means static; even with respect to present requirements, there are design problems still to be resolved.

Because air transportation is subject to radical changes with respect to the types of aircraft available, the types of service rendered and the air routes flown, it is not possible to make a reasonable forecast of airport requirements in all instances. Therefore, in the design of terminal buildings, in particular, it cannot be emphasized too strongly that expansibility and flexibility should be prime considerations. A case in point of flexibility is the Greater Pittsburgh Airport, where, as you point out in your article, the functional arrangement of the comparatively new terminal building is to be modified in the interest of greater efficiency.

As stated above, there are many problems which must be dealt with now and in the future. For example, the loading and servicing of aircraft, particularly with respect to the jets which are coming along, are problems which are receiving considerable attention. Whitney Loadair, which will be installed at New York International Airport and United Airline's Airdock, which is being developed in Denver, are efforts to reduce the ground time at airports, as well as to reduce aircraft-loading apron clutter and space requirements. Although much has been done to reduce point-to-point travel time by the development and use of faster aircraft, very little has been accomplished in the way of reducing ground time at airports.

Along the lines of facilitating operations in terminal buildings and passenger loading platforms or fingers, there appears to be a trend toward further use of mechanical conveyors for movement of passengers and baggage. Such devices do much toward speeding up operations, and of course, moving stairs, in lieu of ramps, conserve valuable space within the structures.

It is hoped that you will find occasion, at an early date, to contribute further to the solution of the pressing problems confronting those engaged in the design of airport terminal buildings.

HERBERT H. HOWELL
Director, Office of Airports
Civil Aeronautics Administration
Washington 25, D. C.

CALENDAR

Canadian Construction Association, annual meeting, Chateau Frontenac, Quebec City, Jan. 16-19.

National Association of Home Builders, convention, Conrad Hilton Hotel, Chicago, Jan. 16-20.

The American Institute of Consulting Engineers, annual meeting, Engineers Club, New York City, Jan. 17.

Annual Concrete Conference, Oklahoma A&M College, Jan. 19-21.

Engineers Joint Council, general assembly, Hotel Statler, New York City, Jan. 21.

Associated Equipment Distributors, annual meeting, Conrad Hilton Hotel, Chicago, Jan. 23-27.

Mason Contractors Association of America, annual convention, Jefferson Hotel, St. Louis, Jan. 30-Feb. 2.

Seventh California Street & Highway Conference, Institute of Transportation and Traffic Engineering, University of California, Berkeley, Calif., Feb. 2-4.

Association of Asphalt Paving Technologists, annual meeting, Jung Hotel, New Orleans, La., Feb. 7-9.

American Society of Civil Engineers, convention, U. S. Grant Hotel, San Diego, Calif., Feb. 8-11.

National Society of Professional Engineers, spring meeting, Hotel Charlotte, Charlotte, N. C., Feb. 18-19.

American Concrete Institute, annual convention, Hotel Schroeder, Mil., Feb. 21-24.

Annual Highway Engineering Conference of the University of Colorado, Boulder, Feb. 24-25.

Concrete Contractor's Association of Greater Chicago, Mid-West Concrete Exposition, Navy Pier, Chicago, Feb. 24-26.

National Association of Corrosion Engineers, annual conference, Palmer House, Chicago, March 7-11.

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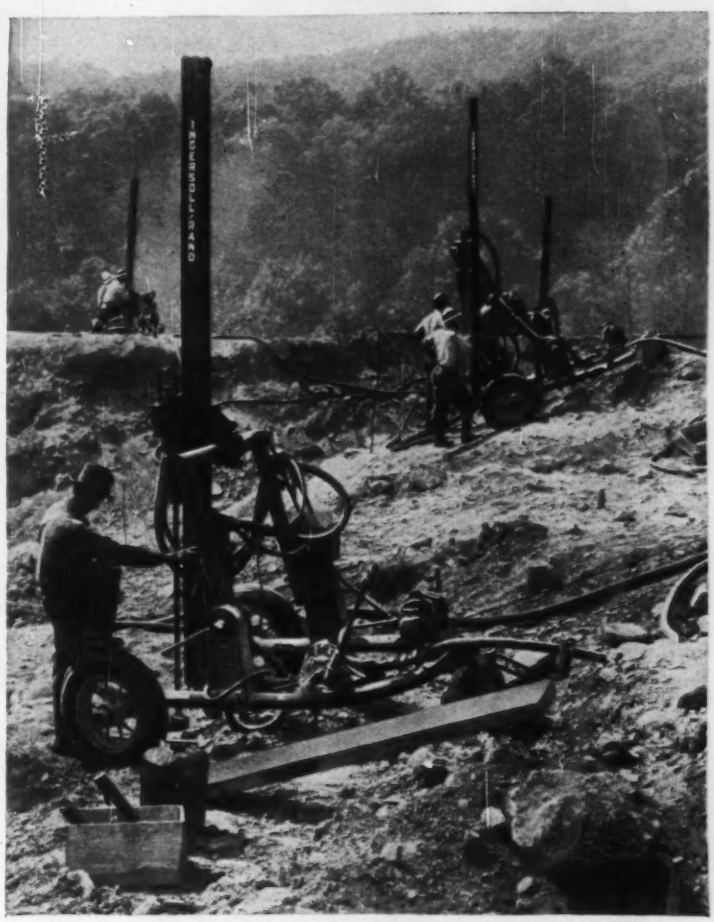

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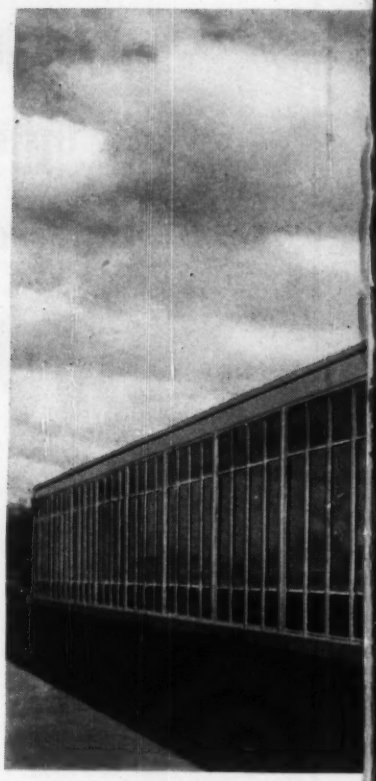

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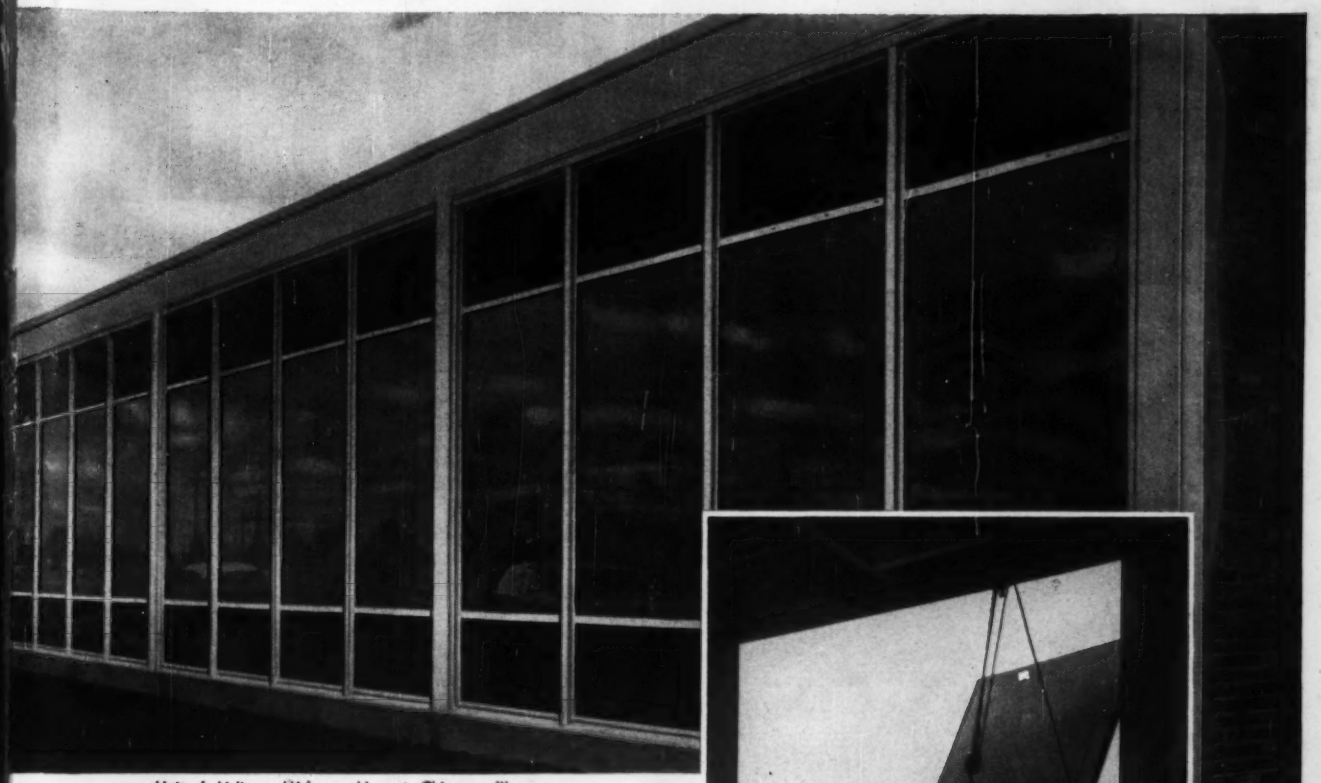

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ENGINEERING NEWS-RECORD

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THE CONSTRUCTION WEEK

COLUMBIA WATER DIVERSION?—It won't be easy—legally—but Canada's Department of Northern Affairs and Natural Resources is going to study diversion of water (for power production) from the Columbia to the Fraser River in British Columbia.

The diversion, according to Resources Minister Lesage, would be made near the "big bend" of the Columbia, where the stream swings from its northwesterly course to flow southward to the U. S. Seven miles south of the "bend" is Summit Lake, source of two Fraser tributaries.

Catch in the plan is that no such diversion could be made without permission from the U. S.-Canadian International Joint Commission—which is now making a complete study of the whole Columbia system.

TURNPIKE SURVEY SET—North Carolina's Turnpike Authority has worked out an arrangement for it to join with Virginia and West Virginia in financing a feasibility survey for a tri-state toll highway at no cost to the state. Authority spokesmen said there will be no more hitches in signing up Coverdale & Colpitts to make the $96,000 survey.

Under the arrangement now agreed upon, banking firms will put up $32,000 to defray North Carolina's share of the survey cost. The First Securities Corp. of Durham, N. C. and Byrne and Phelps of New York agreed to finance the survey with the understanding that they would be bankers for construction of the highway should it be found feasible.

WHEN TO CONDEMN—Kentucky's Highway Department—busily at work on a turnpike to run from Louisville to Elizabethtown—could see trouble ahead after a circuit court decision on condemnation procedure.

A state toll road law in 1952 (amended in 1953) said the highway department may be granted delays up to two years, or until completion of the road in question, in trial of cases involving right of way condemnation.

But the circuit court held that—in the case of property owners in three counties—the law is in conflict with the state constitution, which guarantees "speedy trial."

The matter probably will go to the State Court of Appeals for final settlement.

BIG LIFT—Steep Rock Lake, in western Ontario, will be the scene of one of the year's unusual construction assignments. Two 900-ton dredges will be raised 240 ft during a two-mile move over land to a new iron ore body, where they will begin removing overburden. They already have removed 50,000,000 cu yd at their present location, exposing a rich deposit of ore—the second of three. Dredges will be skidded on a special road.

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WASHINGTON OBSERVER

Eisenhower's plea for federal aid for school construction is rated as a first-of-the-session political score by the President. So say both Republicans and Democrats in Congress.

Eisenhower stepped in ahead of his top officials on education—Oveta Culp Hobby, Secretary of the Department of Health, Education, and Welfare, and Samuel Brownell, Commissioner of Education. They'd been following a policy of delay—making further investigations, and planning for a White House conference on education some months away.

•

The President knew the Democrats were ready to push school aid hard this session—so he took some of the political cream for himself by flatly favoring aid to school construction this year. And there were no ifs, ands, or buts in his language.

Details of the Administration's plans will come in a special message Feb. 15. There's not much information in Washington at present as to just what they might include. One real possibility, though, is that the Administration will recommend the same financing method it advocates for highways: creation of a special federal school agency to issue bonds to raise the federal-aid money which would then be parceled out to the states. Bonds would then be paid off year-by-year out of federal revenues. The idea is to keep down the amount of money coming out of the budget.

•

Big problem is keeping race and religion from blocking a vote. Southerners want the federal aid for their states, but they want to avoid any tie-in with racial integration in the schools. If private church-sponsored schools openly seek a share of the money, the row over separation of the church and state also could be a stymie to legislation.

Another problem is how to split grants between rich and poor states. Wealthier states will argue against being taxed to provide schools for states not so well fixed.

Amounts involved are big. Democrats talked of $500-million per year during the last Congress.

•

Eisenhower will push for labor legislation in the states along with his recommendations to Congress on such things as Taft-Hartley and minimum wage. One part of his State of the Union Message was a tip-off to watch what he and his officials recommend for the District of Columbia, for which Congress is city council. Local laws often hit you harder than federal laws. So the warning is to watch speeches, statements and reports from Labor Department in these fields:

Non-occupational insurance is something new that will be proposed. Idea is to provide compensation to the man who suffers a disabling accident while off the job. Presumably employers would be taxed to contribute, as they now do for workmen's compensation.

More coverage, higher benefits for unemployment insurance and higher benefits under workmen's compensation. Idea is to use District of Columbia as model for states to follow.

The White House adviser on public works Eisenhower talked about in his State of the Union Message (see page 23) would have among his duties settling of disputes that involve one or more construction agencies of the government. He would recommend ways for the President to break inter-agency deadlocks.

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States Seek Additional Construction Funds

Most of the 45 state legislatures convening this month will be hard put to find more highway and school demands

While the 84th Congress is considering unprecedented proposals for federal spending on highways and school construction, most of the 45 state legislatures convening this month will be hard at work trying to eke out additional funds for the same purposes.

Forty-two state legislatures are meeting in January for regular sessions; three others are holding special sessions. Florida will meet in April. Kentucky and Virginia are not scheduled to meet.

Business coming before the legislatures covers a wide range of subjects from the smog menace in California to the question of building a rubber conveyor belt across northeastern Ohio. But, three items of business which will appear on the legislative calendars of virtually all sessions are the following:

• **Highways**—Most legislatures will be under heavy pressure either to raise gas and other highway user taxes or to continue those which were due to expire. Bond issues will be considered in several legislatures, notably New York State for $750 million and Michigan for $500 million, both requiring a constitutional amendment and hence a referendum.

• **Schools**—Urgent need for additional school construction funds will be met both by increasing state aid appropriations and liberalizing the borrowing authority of local governments. Use of a revenue bond issuing authority to build schools for rental by local districts on a lease-purchase arrangement will be considered at least in Washington State. Southern states are bent on accelerating school construction on the basis of separate but equal facilities, even though the doctrine was invalidated by the Supreme Court's historic desegregation decision.

• **Public buildings**—Proposals for institutional building programs are running unusually heavy, calling both for additional appropriations and bond financing. A striking example is Ohio, where Gov. Frank J. Lausche is asking for a $115-million bond issue for welfare and institutional buildings plus authorization to use another $25 million in surplus funds.

• Toll roads

With $6 billion in toll road projects already under way or authorized in 23 states and the demand for future projects somewhat uncertain because of the proposed federal program (see page 23), there will be less occasion to debate toll highway schemes in this year's legislative chambers than has been the case in recent years.

Iowa and Missouri legislatures will consider creating a toll road authority, and Tennessee, after considerable reluctance, is expected to put enabling legislation on the books. But, generally the toll road problems requiring action are in those states which already have projects building or ready to go.

The Michigan legislature will be asked to broaden the scope of its turnpike authority so that it can make feasibility studies in all parts of the state, rather than just in southern and central Michigan as now prescribed.

Indiana legislators will debate whether or not to go beyond the $280-million east-west toll road now under way across the northern part of the state. They'll take a close look at two other propositions: a proposed north-south route from the edge of Chicago to near Louisville, Ky., and an east-west route across the southern part of the state.

The Nebraska Toll Road Authority is trying to borrow $150,000 from the legislature to finance an Omaha to North Platte feasibility study.

The Pennsylvania legislature will consider proposals for a "northern tier" toll road from Erie eastward toward Stroudsburg and for an extension from the existing turnpike in western Pennsylvania to the West Virginia state line for eventual linkup with that state's turnpike.

Delaware has a special toll financing problem. Its legislature now has before it a proposal to permit part of the toll receipts from the $46-million Delaware Memorial Bridge near Wilmington to be tapped to pay for construction of approach roads and connecting highways. The proposal provides also that the bridge would continue as a toll facility even after bonds have been paid off.

• Water usage

New and increased demands for water for agricultural, industrial and domestic use—further intensified by drought in many sections of the country—pose for many state legislatures the task of drafting more enlightened laws governing water rights.

For Texas, water is by far the No. 1 problem at this legislative session. The state's Water Resources Committee, after a year's study, has come up with a comprehensive water conservation plan calling for a constitutional amendment and eight bills. The amendment would authorize a $100-million bond issue to be supported by a 3-cent ad valorem tax. Funds would be used to aid in the construction of dams, reservoirs and other water storage projects by river authorities, reclamation districts, cities, counties and other political subdivisions. The various bills would tighten enforcement of present water laws, and one measure is designed to help stop pollution of streams in the oil fields.

Indiana's problem is typical of the growing water problem in non-arid states. More than 4 billion gallons of water—about double the 1953 amount—went for irrigation of drought-affected farmland in 1954, and industrial demand increased drastically. From the state's Flood Control and Water Resources Commission, legislators have received a draft law, declaring surface waters as public waters subject to regulations beyond those based on conventional riparian doctrine and providing for a two-year study committee to survey the state's water problem further.

Arkansas and Missouri, where water users can establish their rights only through court interpretation of the riparian doctrine, are expected to have a water rights bill put on the books for the first time. Both proposals would establish commissions to administer the law.

Critical water shortages—several requiring emergency measures—in a number of communities in the Carolinas this year will give water rights

. . . 45 State legislatures meet

legislation a top place on the agendas of both legislatures.

In the California legislature, a bill has been introduced to appropriate a revolving fund from which local governments could borrow to construct vitally needed water projects. Still another proposal calls for a state sales tax to raise $50 million a year for water development.

Sure to stir up a fight in the Oregon legislature is the State Water Resources Committee proposal for an all-powerful seven-man board which would control use of water for all purposes and also establish a statewide ground-water code. The proposed new board and its technical staff would replace the Willamette Basin and Upper Columbia River Basin Commissions and exercise certain powers now vested in the State Irrigation Board and Reclamation Commission.

● Feather River project

California legislators have been urged by Gov. Goodwin J. Knight to launch the proposed $1.2-billion Feather River project, which would be a state-financed irrigation and power development involving a huge storage dam in northern California and a system of canals and tunnels to carry water into southern California.

The state engineer will present a report March 1, proposing a step by step construction schedule, estimating funds required and suggesting a means of financing. The governor asked the legislature to act promptly so that right-of-way acquisitions can begin immediately and intial phases of construction can be under way in a year's time.

● The Seaway boom

With the music of future Seaway commerce ringing in their ears, all Great Lakes state legislatures will be tuning up for the multi-million-dollar harbor developments needed to put their port cities in a favorable position. Economic and engineering surveys will be authorized; existing port authorities will be strengthened and new ones created.

There are a number of thorny problems to be worked out. For example, in Michigan, Rep. Herb Clements, chairman of the House Marine Affairs Committee, has asked for a decision at this session on these points: "Whether the present statutory system of port districts should be maintained, enlarged or scrapped; whether to extend the same powers that port districts now have to every municipality or whether a more cohesive and organized program would result by granting sole power in this field to port districts covering a wider geographical area." The Michigan Department of Economic Development will seek $50,000 for an industrial diversification study which would be used in port communities to prepare for Seaway developments.

In Indiana, legislators are expected to vote more than $3 million to start detailed planning for a Lake Michigan harbor at a site known as Burns Ditch, a few miles northeast of Gary. Many Indiana leaders see the proposed Burns Ditch port development as the ideal place from which the state can compete with Chicago for Seaway business.

A bill will be introduced in the Ohio legislature empowering Lake Erie cities to establish local port districts or authorities and to regulate construction and operation of dock facilities. Both Cleveland and Toledo will introduce measures to put teeth in their existing powers to develop waterfront properties. The Ohio Chamber of Commerce plans to request funds to make a survey of the econimic effects of the Seaway on the state and its industries.

● Building codes

Ohio will open the door to more competitive building practices and new materials if its legislature approves a performance-type code that has been drafted to replace the old specifications-type code now in force. The code revision, being submitted to the legislature by the state's Department of Industrial Relations, will affect everything but one- and two-family dwellings. The new code will be set up in such a way that the legislature can approve it by chapters, if necessary, and thus it may not be entirely approved at this session.

The North Carolina legislature is being asked to enlarge the state's Building Code Council, give it authority to codify dispersed building laws and regulations into a unified state building code, and empower it to hear appeals from enforcement agencies.

Weighing heavy in Michigan's legislative hopper is a proposed construction safety code—a 140-page bill. It would "provide reasonable safety for the life, limb and health of employees and others having the right of entrance during erection, alteration, repair, renovation and demolition of every building, structure, bridge and sewer and any excavation work in connection therewith . . ."

● Bidding practices

In California, bills have been proposed to facilitate hiring of private architects to do state work, and to require contractors bidding on public contracts in excess of $5,000 to list firm subcontract bid offers.

Missouri contractors would get a break when bidding against out-of-staters on state work, if the legislature passes a measure allowing them to deduct the 2% they pay in sales tax on materials.

● Wooing industry

Arkansas and Tennessee legislatures will be asked to provide bait for new industry along the lines of Mississippi's BAWI (balance agriculture with indstry) plan. This would mean empowering cities to issue revenue bonds to construct buildings for prospective new industries, which would be able to lease them with or without option to buy on long-range terms. Significantly, the proposed Tennessee law would not allow new industry a five-year period of grace on taxes as in Mississippi.

New York State's legislature, on the other hand, will be asked by Gov. Averell Harriman to authorize a privately financed development credit corporation to foster new enterprises in labor surplus areas. Based on the experience of the New England states the development corporation would be a device whereby a number of financial institutions could pool long-term capital for new ventures and thus spread credit risks.

● Municipal

There will be renewed efforts to obtain additional legislation aimed at facilitating the financing and construction of municipal off-street parking projects.

Private operators, at the same time, will continue to demand that their interests in this field be protected against municipal encroachment.

Several state legislatures will be confronted by demands to provide municipalities with more funds for capital improvements. In some cases, it will be a matter of granting new taxing and borrowing authority. In others, diversion of more gas tax money for city streets and expressways will be the issue.

Legislation to facilitate slum clearance and urban renewal programs will be sought in those states now lacking adequate laws on the subject.

If you total up the various recommendations President Eisenhower made last week in his State of the Union message, what it amounts to is . . .

The Biggest Public Works Program in History

The biggest public works program ever proposed by a U. S. President will be disclosed, a step at a time, in White House messages to Congress this month and next. It's going to be bigger than anyone expected—due largely to the surprise addition of a program to expand school construction as soon as possible.

This decision added schools to the long-awaited highway plan, a dam construction program, 70,000 public housing units in the next two years, and additional health facilities—all bearing the Eisenhower stamp of approval.

Eisenhower also surprised Congress in his State of the Union message with a request for funds to establish a coordinator of public works in the White House.

The Democratic-controlled Congress is expected to be friendly to most of the proposals.

- The budget will request funds for six reclamation and some 30 Corps of Engineer projects. It will also back up the President's request for 35,000 housing units for fiscal 1956 and the same number for fiscal 1957.
- Details of the highway program—still by far the biggest single project—are due in a special message Jan. 27.
- The President's plans for schools will be described in another special message Feb. 15.

• It will be a big job—Eisenhower's second surprise—calling for a coordinator of public works in the Office of the President—was a natural development, but it came sooner than expected.

The coordinator will operate as a staff adviser to the President. He will tell the President how public works programs are progressing, what federal agencies have in mind, and what the state and local picture is. If it comes time to hold back on public works to check inflation, or to expand them in order to keep the economy healthy, the coordinator will be the President's chief adviser.

Eisenhower's highway proposals are expected to follow pretty closely the recommendations which the Clay committee laid on his desk this week. There is no disagreement on the overall program, but the President may not go along with the committee's idea to give the states credit in federal dollars for toll roads they start in the future—as well as for toll roads now built or building—on the interstate system.

• Resource development—Eisenhower re-emphasized his faith in the Administration's partnership policy which encourages private and local participation in development of natural resources, particularly water projects. He cited three major projects of the kind authorized last year by Congress—Priest Rapids on the Columbia River, the Coosa River dams in Alabama and the Markham Ferry project in Oklahoma—and said he wants more of the same from the new 84th Congress.

The President said the increased flow of construction applications to the Federal Power Commission is evidence that local interests are quick to move in under this open-door policy. But Eisenhower also said that the federal government has to make good on its part of the policy—to build useful projects that are beyond the capacity of local interests.

Not much is known about the new Army Engineer projects for which the President will ask funds. But four of the reclamation jobs have been reported. Four of the reclamation jobs the President will request money to start, according to reliable reports, are:

- Santa Maria in California, a new $17-million water conservation and flood control project authorized last year. It includes Vaquero Dam on the Cuyama River, about 60 mi northwest of Santa Barbara.
- Haystack reservoir in Oregon, a $1.6-million addition to the existing Deschutes project, to regulate river flow.
- Michaud Flats in Idaho, a $4-million project to irrigate 11,000 acres.
- Foster Creek in Washington, a $4.8-million project to irrigate 8,700 acres of bench land near Chief Joseph Dam on the Columbia River.

Also looked for in the budget message is a request for money to start the $7-million Palo Verde diversion dam on the Colorado River, which would feed water into existing private irrigation works. But many reclamation officials don't regard this job as a new project start; they suspect that the President has two other projects in mind to round out his list of six new reclamation starts.

Eisenhower's statement that he will ask funds for more than 30 new Corps of Engineer projects raised high hopes among heavy construction contractors. Few big projects, however, are likely to be included in that list. The list will be published in next week's budget message. Projects for which Congress voted planning funds in recent years are most likely to be included.

Just what Eisenhower wants the federal government to do about school construction he didn't say last week. But the affirmative program that he promised Congress for Feb. 15 makes it clear that he is ready to support some kind of federal aid that will speed the building of needed classrooms.

Political Storm Brewing Over NLRB

Democrats in Congress plan to take a close look at recent decisions, may challenge two key Eisenhower appointments

The National Labor Relations Board, its operations stalled by vacancies in two key positions, faces a political onslaught in Congress before it can resume the critical task of settling labor disputes.

In the weeks ahead, the NLRB will be the focal point for differences between Republicans and Democrats over labor. President Eisenhower's labor legislation program should provide ammunition for extensive debate among the legislators, but it will be the NLRB that causes most of the fireworks.

The reason is that the Democrats, particularly those on the Senate Labor Committee, want to review the operations of the NLRB during the 18 months it was run by a Republican majority. Differences between the two parties in recent years have centered on NLRB's interpretations of the law rather than on the law itself.

Primarily, that's because the Taft-Hartley Act has remained virtually unchanged since it was passed in 1947, but its rules have been altered by decisions of the board.

The coming investigation will include close democratic scrutiny of:

- Two Eisenhower appointments that will have to be passed on by the Democratic-led Senate.
- A recent series of key decisions that were rushed through while the board still held a three-to-two Republican majority.

The formal Senate committee action will be the review of Eisenhower's candidates for the general counsel's post and the fifth board membership. Both are key positions, since the counsel has the sole authority to initiate unfair labor practice cases, and the new member will become the "swing man" between two GOP appointees and the Democratic holdover members.

For the past few weeks, since the expiration of George J. Bott's term as counsel, the board has been restricted to processing representation elections. Board action on violations of the Taft-Hartley Act have been held up at the counsel's office, since only he is authorized to press complaints before the agency. Board operations also have been slowed down due to the departure of member Albert C. Beeson a month ago.

Eisenhower's choices for both posts probably will face a tough time on Capitol Hill, but the chances are they'll be approved. Slated for the general counsel's job is Chicago attorney Theophil C. Kammholz, who was first proposed during the last session. In line, at the moment, for the member's position is Dwer Shugure, former administrative assistant to Sen. Irving Ives of New York.

THEOPHIL KAMMHOLZ is slated to be NLRB general counsel.

Both men are attorneys whose firms represent industry. This, in itself, is enough to bring them under the fire of union leaders even though they are not labeled as conservatives. In fact, some management officials also have expressed opposition to their appointments.

The nominations will open the way for the Senate Labor Committee to look over the board's activities under the Eisenhower Administration. For the most part, NLRB decisions have been bitterly attacked by unions as favoring management.

Some of its rulings came on a three-two majority of Republicans, but most board cases were decided either unanimously or with the members joining in various alliances, regardless of party label. Nevertheless, organized labor will be pressing for a complete investigation, and Democrats on the Senate Committee have promised to comply.

At the same time, the Senate group and the more conservative House Labor Committee will take up the Administration's other labor recommendations. The Administration will most likely repeat most of the Taft-Hartley proposals of las year which made no headway—and the same outcome is anticipated this time.

On the minimum wage, the Administration's plan for a 15-cent boost in the current 75-cent minimum probably will go through, but any efforts to add presently exempted industries, such as retail trade and service groups, will face a tough fight.

Call Bids on Second Seaway Contract

Administrator Lewis G. Castle of the St. Lawrence Seaway Development Corp. announced that the Corps of Engineers has invited bids on the second major contract, the excavation for Robinson Bay lock.

Drawings and specifications are available at the office of the District Engineer, Col. Loren Olmstead, Buffalo 7, N. Y. Bids will be opened Feb. 3 .

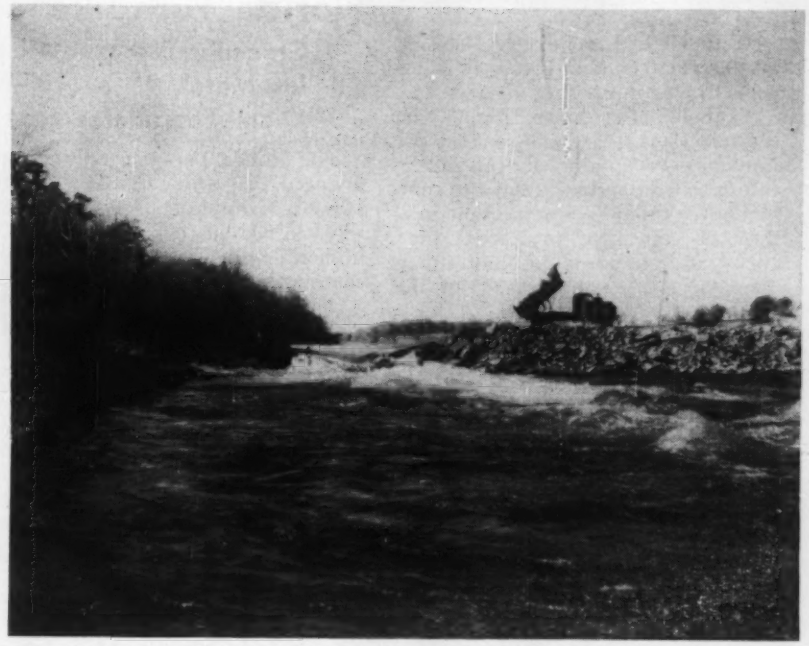
Robinson Bay lock is about 3½ mi northeast of Massena, N. Y. The excavation will expose the surface of the rock over 200x1,200 ft area.

Depth of material to rock is about 115 ft; about 2 million cu yd of glacial till will have to be removed. The glacial till is mostly sand and clay interspersed with boulders and stone. About 1 million cu yd of dike embankment also are involved.

Bidders may inspect four open pits excavated to canal grade and make general inspection of the job site by applying to Thomas F. Airis, Resident Engineer, Area Office, Corps of Engineers, Plancor Road, Massena, N. Y. Telephone: Massena 422. A set of drawings require a $25 deposit.

Castle said he plans to advertise additional excavating contracts to cover more than 85% of the excavation to be done by the U. S. as follows:

Contract	Excavation cu yd	Material	Advertising date
Grass River lock excavation.....	2,500,000	earth	Feb. 15, 1955
Long Sault Canal excavation & dike construction	12,000,000	earth	Mar. 15, 1955
Thousand Islands section channel dredging	60,000	rock	June 15, 1956
Cornwall Island south channel dredging & canal excavation downstream of Grass Rock River lock	3,100,000	earth	Sept. 15, 1956



COFFERDAM will close the north channel of the river between Sheek and Barnhart Islands to make way for a start on powerhouse construction downstream in the spring.

Canada Pushes St. Lawrence Work

Construction on the Canadian part of the St. Lawrence Power project is beginning to pick up speed.

Mannix-Raymond Co., Ltd., of Montreal is building two cofferdams to enclose the area where the international dam and powerhouse will be built. And the Ontario Hydro-Electric Power Commission, with its own forces, is driving two tunnels to provide access to the powerhouse site for equipment, materials and men.

When the 500-ft cofferdam (above) and the 4,500-ft cofferdam 2.7 mi downstream are completed, the enclosed area will be pumped dry so that construction of the international powerhouse dams and generating station can proceed "in the dry" next spring.

Both Ontario Hydro and its major contractor on the cofferdam phase of the work have their field headquarters virtually at the work site, west of Cornwall, Ont., along the St. Lawrence shore. Powerhouse construction for Canada will extend from the Ontario shore of the river to the international boundary at mid-stream.

The tunnel will be located opposite the HEPC project offices, now under construction by Cementation Co. of Canada, Ltd., Toronto. The larger tunnel will have a diameter of 16.5 ft and will be capable of carrying vehicular traffic loads up to 15 tons.

The smaller tunnel will have a diameter of 10 ft. It will be used by personnel on the job and also will house a conveyor belt which will be used to move concrete aggregate from the project office area to a mixing plant to be constructed at the powerhouse site.

In addition, a motor-operated Bailey bridge on tracks, designed to handle heavy construction equipment, will span the Cornwall Canal at Lock 19, 1.5 mi west of Cornwall.

Interior Sets Up New Board To Hear Contractor Claims

The Department of the Interior has established a new Board of Contract Appeals to handle the claims of contractors working for the department.

The board consists of three members of the staff of the solicitor of the department with the Assistant Solicitor of Claims and Contract Appeals as chairman. Five alternate members, four of them engineers in Interior Department agencies, will serve as alternate members in special circumstances.

Until now contractor claims have been handled by the department solicitor under authority from the Secretary of the Interior.

The new board will be chairmaned by Theodore H. Hass. Thomas C. Batchelor and William Seagle will be regular members. Alternate members are Arthur O. Allen, T. W. Mermel, Harry A. Sellery, Jr., George W. Toman and K. K. Young.

Great Lakes Ports

St. Lawrence Seaway will spur big program of port development

Construction of the St. Lawrence Seaway will require more than $1 billion of marine engineering and contracting during the next five to ten years, according to Harry Brockel, Milwaukee Port Director.

Brockel made this estimate in a talk before the third annual meeting of the Great Lakes States Industrial Development Council last week at the University of Notre Dame.

He said the overall program would include Seaway construction, channel deepening, port improvements and additional port facilities. Both big and little Great Lakes ports, he said, will feel the impact of the Seaway.

Brockel said it had been estimated that 6.4 million tons of general cargo will move through the Seaway to and from Great Lakes ports during the first year it is operative. He said rail and truck facilities at ports would have to be enlarged, more warehouses built and other port facilities expanded to handle this volume of cargo.

Brockel said not every harbor on the Great Lakes can hope to become a port. He said development of some smaller ports, even those with good natural harbors, would be handicapped by economic factors. He said, in general, a port must be in a locality with considerable industry or must serve as a gateway to a heartland area of agriculture and industry producing products suitable for shipment by water.

For ports with Seaway opportunities, Brockel made these recommendations: Make someone responsible such as a port authority, zone intelligently, protect waterfront areas, and develop waterfront industries aggressively.

Maxim M. Cohen, general manager and secretary of the Chicago Regional Port District, told the meeting Chicago's port development plans were based on the prospect that it would become the Great Lakes port terminus for a large area of the Midwest.

He said Chicago was planning four 500-ft transit sheds on 2,500 ft of dockage that would be capable of handling eight small ships. The sheds will be one-story, fireproof units, served by 40-ft concrete wharf aprons in which two railroad tracks will be embedded. Behind the sheds will be a paved concourse 105 ft wide by 2,500 ft long to serve trucking. Adjacent to the sheds will be a large universal bulk dock and a 13,000,000-bushel grain elevator.

Mechanical Mole

Machine setting records for large bore tunneling at Missouri River dam

A $300,000 tunneling machine is setting new records for large bore drilling at the Army Engineers' Oahe Dam near Pierre, S. D. (ENR Dec. 2, 1954, p. 24).

Brig. Gen. W. E. Potter, Missouri River Division Engineer, said the continuous miner already is doubling the best previous achievement in tunneling and can be expected to improve its performance.

For the period from 1 a.m. Dec. 20 to 8 a.m. Dec. 28, the machine drilled 311 ft of the 25-ft tunnel bore, Gen. Potter said.

The machine averaged 2.1 ft of tunnel an hour in this period. This is more than double the previous record of 1 ft an hour set in drilling the tunnels at Fort Randall and Garrison Dams.

In operation, the machine digs tunnel at the rate of 1 in. a minute, or 5 ft an hour. It kicks 1½ cu yd of spoil into the conveyor belt system each minute.

But the machine operates only about half the time. It has to be stopped every 4 ft to install arch ribbing as a guard against cave-ins. Periodically, it has to be halted to bring in another segment of the conveyor belt system that carries spoil to the mouth of the tunnel. The 2.1-ft figure includes these interruptions.

The production figure is expected to be upped as workers gain experience and achieve sequence smoothness to shorten the down time, Gen. Potter said.

During the forepart of the Dec. 20-28 run, the machine racked up 35 ft of tunnel each 20-hr day. In the final two days, production was 50 ft per 20-hr day.

The machine was developed by Mittry Constructors of Los Angeles, holders of the $9.5-million Stage I contract for Oahe outlet works. On the job, it is known as the "Mittry Mole."

Operation experience has resulted in correction of one important defect in the machine. Soon after it went into operation last month, the "Mittry Mole" developed a toothache. The teeth on its cutter head quickly wore out and snapped off.

This was overcome by installing bigger, heavier teeth. The original teeth cut a bit 1 in. wide and 10 in. deep. The new teeth take a bite 2 in. wide and 6 in. deep. Indications are that the new teeth will dig 50 ft of tunnel before replacement is necessary.

With 429 ft completed, drilling in the 1,636-ft No. 1 tunnel is expected to be finished in 30 days.

Tunnel lining began during the shake-down period, but now that the tunneling machine is in full stride, future concreting may await the completion of drilling. Specifications permit the contractor to leave Oahe's tricky shale exposed no more than 30 days; this is ample time for the machine to bore the tunnel.

Jobs in the News

HOUSING DEVELOPMENT—Utah Construction Co., San Francisco, will construct a housing development at Alameda, Calif. Over 1,200 acres of Bay Farm Island and south shore tidelands, requiring extensive filling and shore line projection, will be utilized. Estimated cost is $75 million. Work will begin late in 1955.

ASSEMBLY PLANT—J. A. Utley, Walter L. Couse & Co., and Barton-Malow Co., all of Detroit, will build a new assembly plant in Detroit for Chrysler Corp. Estimated cost including improvements to existing facilities, is $20 million. Albert Kahn Associated Architects and Engineers, Inc., Detroit, designed the plant. W. E. Wood Co. has the foundation contract. Construction will start immediately and completion is scheduled for June.

GENERATING PLANT – Sollitt Construction Co., South Bend, Ind., will construct a steam electric generating unit and plant addition for Ohio Power Co. at the Muskingum River plant, Beverly, Ohio. Estimated cost, including the turbo-generator and boiler, is $29.6 million.

PAPER MILL—Brown & Root, Inc., Houston, Texas, will construct the third unit of a paper mill at Lufkin, Texas, for Southland Paper Mills. Estimated cost is $15 million. Construction will start immediately.

OFFICE BUILDING—Diesel Construction Co., Inc., New York, will erect a 20-story office building in New York City for 711 Third Ave., Inc. Estimated cost is $6.3 million. William Lescaze, New York, is architect.

BRIDGE—Boh Brothers Construction Co., New Orleans, has been awarded a $4.1-million contract by the Louisiana State Highway Department to build the Industrial Canal Bridge at New Orleans.

Florida Turnpike

Groundbreaking now set for March 15 on 103-mi Miami-Fort Pierce road

The Florida Turnpike Authority announced that groundbreaking for the 103-mi Miami-Fort Pierce toll highway will take place March 15 if a $74-million bond issue to finance construction has been sold by that date.

The authority said it hoped to advertise for bids for the first construction contracts by Feb. 14 and to start awarding contracts by Feb. 28.

The authority approved an engineering report on the project by Howard, Needles, Tammen and Bergendorf, New York consulting engineers, which set actual construction cost of the superhighway at $46 million.

The remainder of the funds from the bond issue will be used to pay off a $3.5-million indebtedness incurred by the authority, obtain right-of-way, set up a contingency fund, pay interest charges during the construction period, employ engineers and defray operating expenses.

R. N. Bergendorff, partner in the consulting engineer firm, told the authority the toll highway could be opened to traffic by Sept. 1, 1956, if construction proceeds without delay.

As recommended by the engineers and approved by the authority, the toll road will run from Fort Pierce to the intersection of Hollywood Boulevard and State Road 7 in Hollwood, Fla. In the Palm Beach area the road will swing 2 mi farther west than contemplated in earlier plans.

The authority also voted to employ an engineering firm to make a cost study of a turnpike extension from Fort Pierce to the Florida-Georgia line.

In a reorganization of the authority —after changes in its personnel made by Florida's new governor, Leroy Collins—Thomas B. Manuel of Fort Lauderdale was elected chairman. W. Howard Frankland of Tampa was named vice chairman, and William T. Alsop of Ocala became secretary-treasurer. Other members are Charles E. Commander, Jr., Jacksonville, and Richard H. Simpson, Monticello, who will serve jointly on the Turnpike Authority and the Florida Road Board. Sam Turnbull, former chief engineer of the State Road Department, was appointed engineer for the authority.

The authority authorized Manuel to negotiate a contract settlement with Parsons, Brinckerhoff, Hall & Macdonald, New York consulting engineers, and the six sectional engineers employed by the authority under a previous state administration.

(*National Affairs cont. on p. 28*)

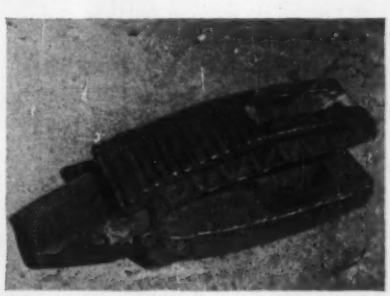
This 5 yard Manitowoc shovel is amply protected at all wear points with Stoody 21.

STOODY 21 helps maintain schedule on Nevada's Highway 40

Stoody 21 has played a part in meeting earth-moving schedules for Morrison-Knudsen, world's largest construction company, on a 2½ million dollar grading job, expanding Nevada's Highway 40 between Reno and Fernley. Contracting to do the job in 170 days, M-K has kept well ahead of schedule.

Equipment used by this division of M-K is customarily hard-faced before it goes into service. On the Nevada highway job this protection was doubly important because of the abrasive nature of the material handled. As routine procedure new shovel teeth, adapters, buckets and ripper teeth were hard-faced with Stoody 21 and maintained with this alloy throughout. Worn teeth were built up by welding a section of grader blade to the point, using low hydrogen electrodes. These teeth were then hard-faced as illustrated. No pre-heat or heat treatment was used, nor was any effort made to follow a particular hard-facing pattern—the object was simply to get on enough hard metal to do the job.

Worn teeth built up with grader blade scraps and hard-faced with Stoody 21.



All exposed areas of this shovel tooth adapter are hard-faced with Stoody 21.

Because of Stoody 21's resistance to both abrasive wear and impact, average shovel tooth life on this job was extended to two full shifts before rebuilding or refacing became necessary.

Stoody's hard-facing experience in protecting equipment over the past quarter century is yours for the asking. See your Stoody dealer (consult the yellow pages of your phone directory) and request a free copy of the "Hard-Facing Guidebook," or write direct.

STOODY COMPANY
11976 E. Slauson Avenue,
Whittier, California

For UNDERPASS DRAINAGE

SUBMERSIBLE EJECTOR

New! with 6" DISCHARGE!

A "Big Brother" to the famous 3" and 4" Pumps

FIG. SE-890

NO PUMP HOUSE REQUIRED

Capacities to 2000 GPM

The new ejector designed for completely submerged operation is constructed with the same engineering features that have made the 3" and 4" Submersible Ejectors so trouble-free and efficient. It can be supplied with 5" or 6" discharge, with heads to 70 feet and capacities to 2000 GPM.

The new pump has been developed to answer the need for low cost installations where large quantities of water must be drained quickly. It is particularly adapted for highway underpass drainage and is designed for continuous operation during flood periods. The NON-CLOG Impeller will handle 3½" solids.

Can be supplied with control systems having no moving parts in the pits. Multiple installations are furnished with controls to program the operation for load requirements.

CONSTRUCTION FEATURES:

Motor and bearings are hermetically sealed. The motor, housing, drive shaft and impeller — all of the working parts — are an integral and interchangeable unit and can be removed without disturbing the piping. They are not subject to corrosion, deterioration or injury when standing idle—regardless of weather conditions.

The NON-CLOG Impeller is of manganese bronze; pump shaft stainless steel; permanently sealed ball bearings; volute type casing of nickel iron; motor windings of special design and construction are permanently non-corrosive; motor housing machined and sealed to exclude dirt and water.

Ask for Bulletin SE 860 C

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Agency Asks Bids on Piers For Big Missouri Bridge

The Missouri State Highway Commission will ask for bids Jan. 28 on eight piers, first construction work in a $13.5-million bridge project over the Missouri River at St. Louis.

Cost of the new four-lane bridge, which will carry U.S. Highway 40 traffic over the river, will be $8.5 million. Connecting roads to the bridge will cost $5 million.

Construction of the piers, seven of which are to be sunk by compressed air and the other by the coffer-dam process, is expected to begin this March. Completion will take about two years. The bridge, designed by Sverdrup & Parcel Inc., of St. Louis, will be 4,083 ft long with a 450-480-450 ft continuous truss at the channel. Also included are eight continuous plate-girder spans, four of them 242 ft long. Lightweight concrete will be used throughout for the bridge deck.

The abutment and five piers on the east approach in St. Louis County will be pile-supported. The remainder of the foundations will be on rock.

Construction of the new free bridge, about 20 mi northwest of St. Louis, was made possible largely by an increase of $8 million a year in federal highway aid to Missouri beginning this year. The present, 52-year-old St. Charles Bridge will continue in service as a state bridge.

Before the new bridge was authorized by the State Highway Commission last June, St. Louis County officials had proposed that the state participate with the county in building a toll bridge to relieve traffic congestion.

"Rain Goods" Anti-trust Case Near Settlement

A settlement of the restraint of trade case brought against 20 manufacturers of "rain goods" building materials by the Federal Trade Commission is near. This week FTC announced 19 of the companies have consented to an order signed by a hearing examiner. The order prohibits the companies from conspiring to fix and maintain prices to eliminate competition.

FTC filed its case last July (ENR July 15, 1954, p. 25), charging the manufacturers used illegal delivered pricing systems to sell rain goods materials, used for rain carrying and drainage. FTC charged that footage items (pipe gutters and eaves troughs) were sold on a zone delivered price basis with different discounts for jobbers, dealers, hardware stores and builders. According to FTC, the manufacturers sold accessories (elbows, hangers and funnels) at identical uniform delivered prices throughout the country.

CITY BY CITY

Neighborhood Loyalty

Cleveland—The advisory board of one of the city's older hospitals, situated in a blighted area, has proposed a $16-million urban redevelopment plan, which it contends is needed to make its neighborhood worth investing in improved facilities.

As drawn by Robert A. Little & Associates, Cleveland architects, the redevelopment scheme submitted to the City Planning Commission by St. Vincent's Charity Hospital covers 56 acres and calls for $4 million in hospital improvements, $1.6 million for two schools, $690,000 for a motel, and $9 million for housing and other facilities.

If the City Council votes to designate the 56 acres as a redevelopment area as prescribed by the Federal Housing Law of 1954, the land will be cleared and portions of the area sold to private interests for development.

The hospital, which serves much of downtown Cleveland, made its proposal to the city after its board had decided that a new site would be inadvisable.

Restoring a Landmark

Boston—F. H. McGraw & Co. will undertake the job of rebuilding North Church steeple, famed tower of liberty toppled by Hurricane Carol late last summer.

Restoring the structure in its original form will call for ingenuity. For one thing, some sections of the spire may have to be put in place by means of helicopter. In addition, some of the needed material items are difficult to find. McGraw project manager Sinclair Adam now is searching for four white oak beams, each 46 ft long, to serve as main structural members in the steeple. These scarce beams may have to be especially cut.

The New York City construction firm, which will carry out the five-month steeple project without fee as a public service, expects work to get under way early in the spring.

Cutting the Cost

Omaha—Former steel trolley poles soon will be supporting a roof over the buses that are replacing Omaha's streetcars.

Some 400 of the poles are being used for piles and supporting columns in a $110,000 bus port now under construction at the shops of the

(*Continued on page 32*)

...masonry water repellents made with G-E DRI-FILM® silicones

Masonry water repellents containing General Electric DRI-FILM silicones preserve the beauty and prolong the life of structures—old and new. A simple, inexpensive treatment retards spalling and cracking, controls efflorescence and keeps surfaces cleaner. And, of course, a water-repellent *exterior* means a dry *interior*.

Water repellents formulated with DRI-FILM silicones are the *most durable known*. They're erosion-resistant—because silicones provide "defense in depth." They penetrate masonry pores deeply to keep water out—yet permit masonry to "breathe"!

Ask your water repellent supplier about a treatment based on G-E DRI-FILM silicones! For the names of suppliers using DRI-FILM in their products, just write to General Electric Company, Section 55-1A, Waterford, New York. (IN CANADA, write to Canadian General Electric Company, Ltd., Toronto.)

Paint and Chemical Manufacturers!

DRI-FILM silicones offer you a profitable opportunity to add a superior masonry water repellent to your product line. Ask us about DRI-FILM 103, a new G-E silicone with important manufacturing advantages!

G-E silicones fit in your future

GENERAL ELECTRIC

ELECTRICAL OUTLETS...

at a new low cost!

standard ducts can be buried in

structural concrete—without fill

Flexibility At Low Cost

Now you can get 100% electrical flexibility—at a new low cost—with underfloor electrical distribution ducts set in standard reinforced concrete joist floors. These ducts are buried in the structural slab of the floor, and no special "fill" is needed. As a result, electrified R/C Duct Floors can be constructed at a cost that is appreciably less than the cost of cellular steel flooring.

Electrical Outlets As You Need Them

With R/C Duct Floors, all wiring—power, telephone, and intercommunication systems—can be run in the ducts. These ducts, which can be run at any desired spacing, have blank risers every two feet of their length. Electrical outlets can be connected to these risers in a matter of minutes, to serve each desk. This makes it possible to rearrange desk spaces or offices as needed without digging up the concrete floors. Office buildings, department stores, and other structures require this flexibility for future change and growth.

Underwriters' Laboratories Tests

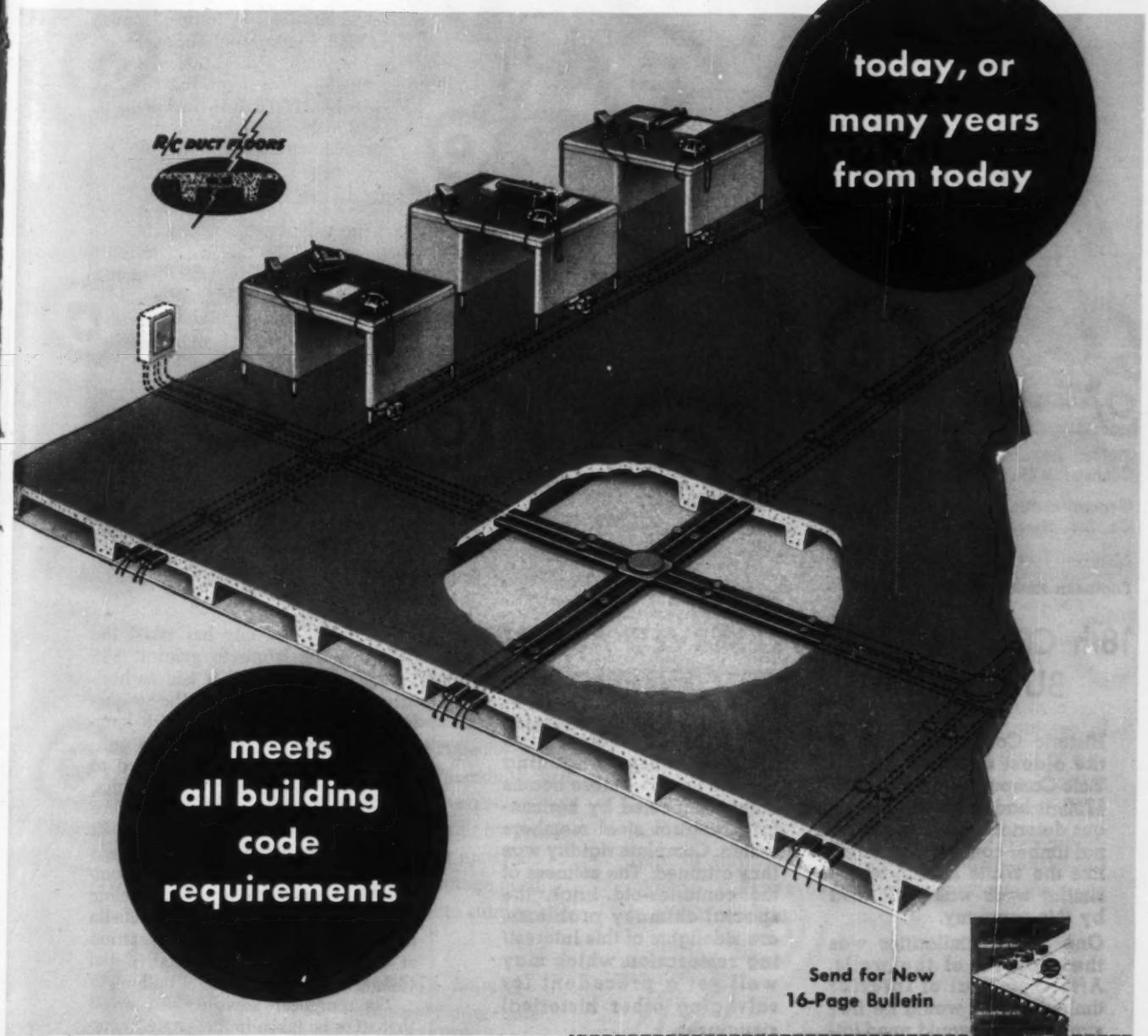
Recent tests made at Underwriters' Laboratories have established fire ratings for R/C Duct Floors with the ducts in the structural slab. One test used reinforced concrete construction with joists 6″ deep, plus a 2″ top, and a ¾″ vermiculite ceiling. This construction was given a three-hour fire rating, which meets *all* building code requirements. Another test was run on heavier-type reinforced concrete construction with joists 6″ deep, plus a 3″ top, and a 1″ vermiculite ceiling. This fire test was stopped after six hours. In both test floors, the forms were dropped 2″ under the ducts and junction boxes. No special provision was made for the ducts, which were buried in the structural concrete—*no fill required.*

Before you design your next building, investigate R/C Duct Floors. They can be built with standard forms and ducts, and require no special engineering. And, compare the cost of R/C Duct Floors with cellular-type construction!

R/C DUCT FLOORS

(Electrified concrete joist floors)

WHERE YOU NEED THEM



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ANOTHER PROBLEM SOLVED BY SPENCER, WHITE & PRENTIS

Walls supported as interior steel frame is installed
200-year old brick very soft
Horizontal beams take thrust of exterior shoring

Project: Restoration of Yale University's Connecticut Hall

General contractor: Paterson Construction Co., Inc., New Haven, Conn.

Architect: Douglas Orr, New Haven, Conn.

Engineer: Henry Pfisterer, New Haven, Conn.

18th CENTURY FACE PRESERVED AS YALE BUILDING GETS NEW INTERIOR

Historic Connecticut Hall is the oldest structure on the Yale Campus. Standing since 1750, it had suffered dangerous deterioration of the internal timber construction, much like the White House, where similar work was performed by this company.

One of the similarities was the problem of the walls. After removal of interior timbers, walls would be free standing and would need lateral support. Photo shows inclined shores engaging vertical beams—these beams being connected by horizontal structural steel members within. Complete rigidity was thus attained. The softness of the centuries-old brick, the special chimney problems, are sidelights of this interesting restoration which may well set a precedent for salvaging other historical structures.

LITERATURE ON REQUEST

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Omaha & Council Bluffs Street Railway Co. The 180 x 200 ft building, which will hold 106 buses, will be open at both ends and topped by a steel roof with a 15-ft overhang.

As piles to support the structure, the six and eight-inch poles are joined with welded splices to be sunk as deep as 68 ft. Afterwards, they are filled with concrete. More poles will be welded to the piles to form columns.

The trolley poles would bring about $2 each as junk. Fabrication, done in the company's own shops, runs around $15 a pole. If the firm had bought new material, paid for fabrication, it would have cost about $85 a pole.

Groundwork for Color TV

Schenectady, N. Y.—Schenectady is scheduled to have the first television and radio center in the U. S. designed specifically for color TV facilities. The $2-million building will house radio station WGY and television station WRGB, owned by General Electric.

The new structure, expected to be ready for occupancy by mid-1956, will have a floor area of about 54,000 sq ft and a total studio area of 9,000 sq ft. It will include three television and two radio studios, the largest being a 300-seat auditorium that will permit audience-participation TV shows.

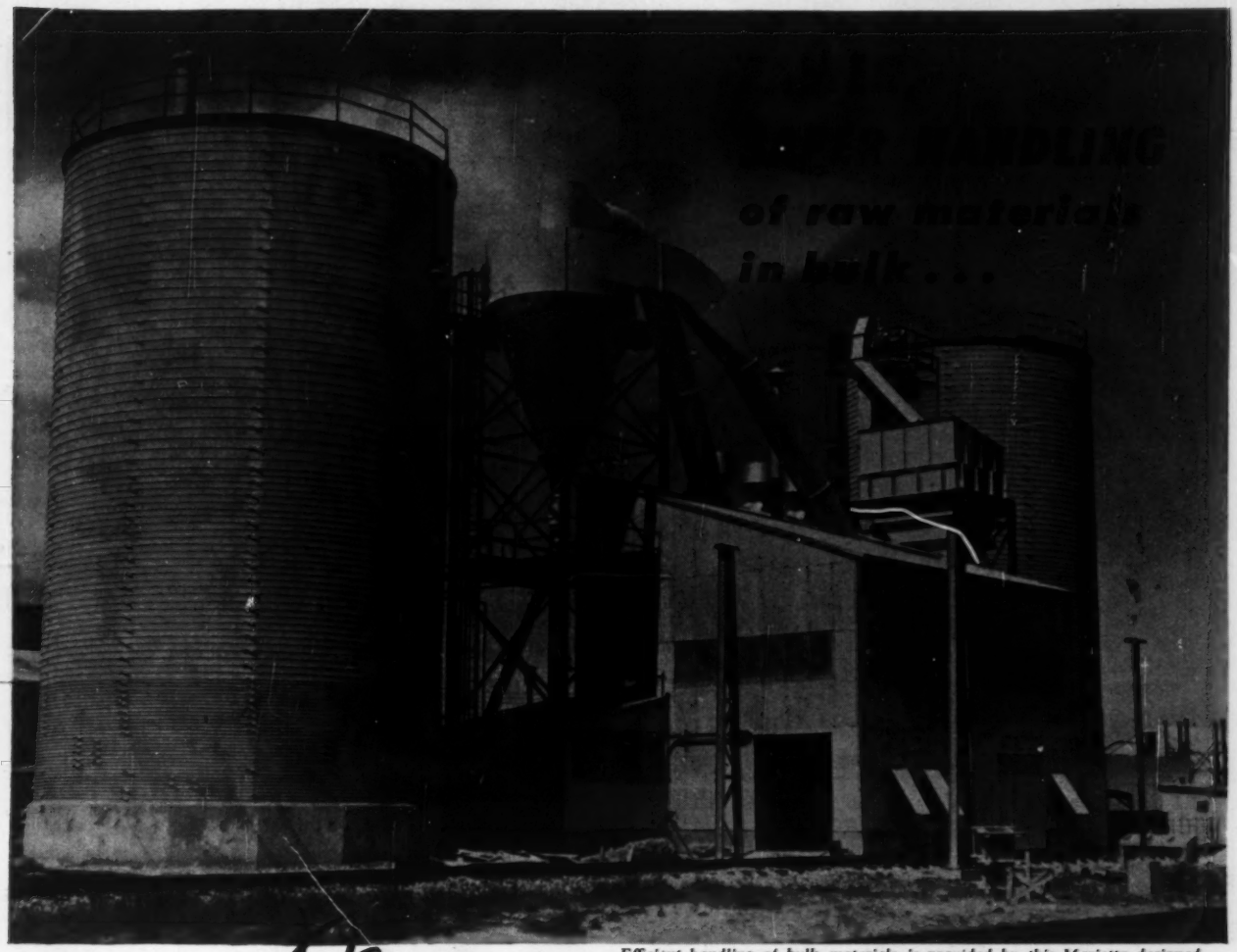
Water for the Future

Baltimore—The city has asked the Maryland legislature to grant it $45 million in loan authority and authorization to divert water from the Susquehanna River, in pursuance of a long-range water supply program.

A special advisory board, named to study future water supply possibilities, has reported that an additional source should be made available by 1965. It considers the Susquehanna River as the most feasible source to tap, recommending construction of a pipeline from Conowingo to the Montebello filtration plant and a pumping station at Conowingo. The estimated initial cost of this project is $33.4 million.

The engineer advisors also urged that steps be taken immediately to correct deficiencies in the existing distribution system, which they declared over a period of five years might require expenditures of over $25 million.

The advisory board was composed of Abel Wolman, consultant and professor at Johns Hopkins University; Gustav J. Requardt, member of Whitman, Requardt & Associates, Baltimore; and Harry B. Shaw, Washington (D. C.) Suburban Sanitary Commission's deputy chief engineer.



Efficient handling of bulk materials is provided by this Marietta designed and erected storage system at Texas City Chemical Co., Texas City, Texas.

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Beth-Cu-Loy galvanized pipe carries Delaware-Raritan Canal for 800 ft while retaining wall is built in the bed. *General Contractor:* F. A. Canuso & Sons, Philadelphia. Pipe was fabricated by Penn Metal Corporation of Pennsylvania, Philadelphia.

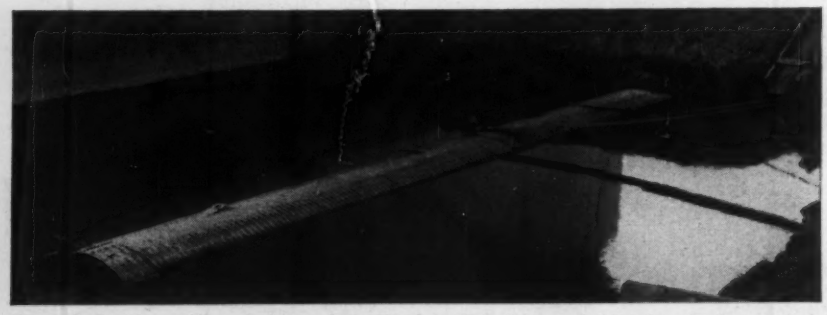
They had to "can" the canal without stopping its flow

Rolling leisurely through that corrugated steel pipe is the Delaware-Raritan Canal, near Trenton, N. J. It's in there because the contractor had to build an 800-ft highway retaining wall in the canal bed, and his contract stipulated that the flow of water remain uninterrupted.

They accomplished this in a rather ingenious way. First, they fabricated a 78-inch pipe of Beth-Cu-Loy galvanized steel culvert sheets, in sections 20 ft long. They submerged these sections and divers coupled them under water. Earth dams were then thrown across each end of the 800-ft stretch, and the water was pumped out between the dams. With the canal thus "canned," construction crews had a dry bed to work on. Once the wall was completed, the dams were removed, the pipe recovered, and the canal reverted to normal.

This unusual application proved a natural for Beth-Cu-Loy culvert sheets. The Beth-Cu-Loy pipe was easy to couple, even underwater. Its light weight made installation easier and faster. And its rugged strength was a lifesaver on this job where, for economy reasons, Beth-Cu-Loy had to be used in 12-gage under conditions normally calling for a heavier gage.

While Bethlehem does not fabricate Beth-Cu-Loy culvert or drainage *pipe*, we do manufacture the Beth-Cu-Loy galvanized corrugated or flat steel stock used by fabricators. Any Bethlehem sales office will furnish detailed information on Beth-Cu-Loy, including the names of fabricators who use it.



One end of project, with earth dam and pipe in place. Pipe did remarkable job under heavier-than-normal pressure.

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The Delaware River Water Problem:

Discussion of a Difficult Allocation Decision

By: William A. Schnader, of Counsel, Commonwealth of Pennsylvania; and Samuel A. Greeley, Greeley & Hansen, consulting engineers, Chicago.

Few interstate river problems are as extensive or complex as that of the Delaware. Twice in a generation the problem has been considered by the Supreme Court of the United States. Aspects include water supply, sewage disposal, salinity, shell-fish, commercial fishing, navigation and recreation.

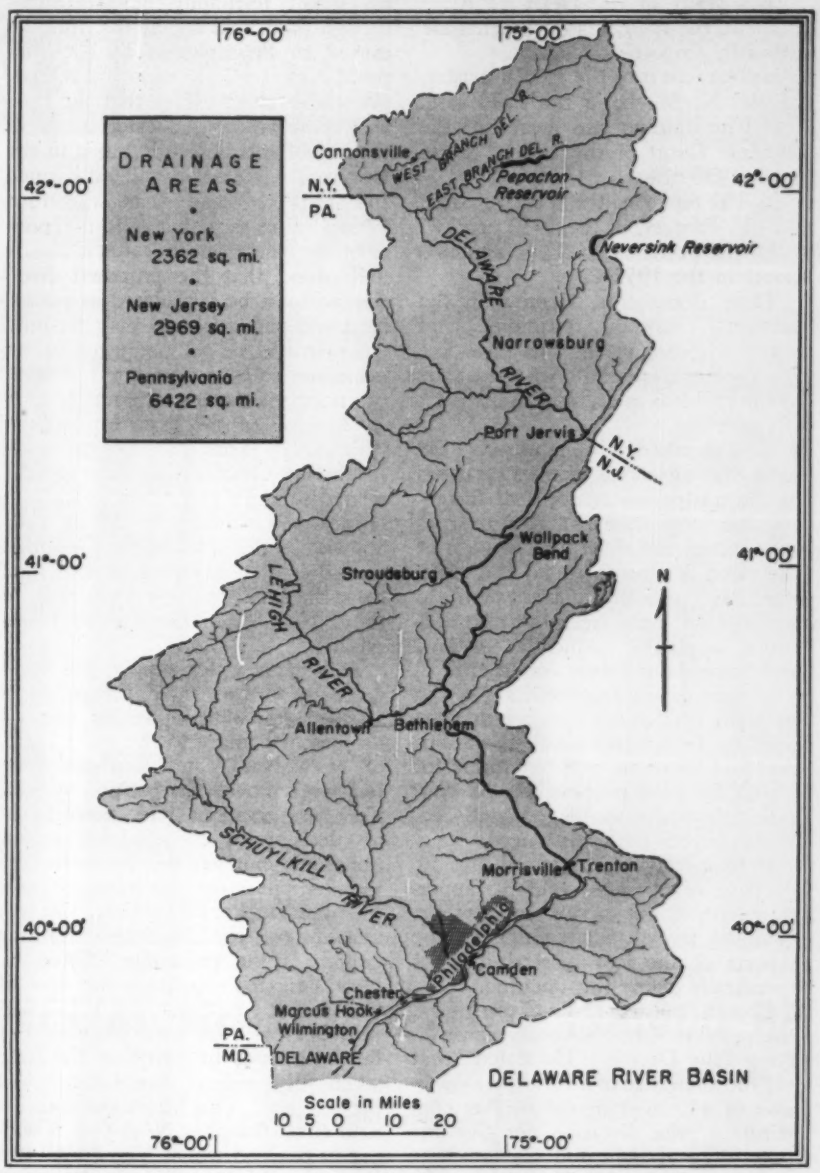
And a final aspect is the all-important problem of the application of principles of law: Each of the four abutting states guards its interest in Delaware River water with great care and astuteness. The so-called fair and equitable apportionment of the river water became a matter of active concern when New Jersey in 1930 petitioned the Supreme Court of the United States to enjoin New York from completely diverting 600 mgd, out of the drainage area to New York City. The Supreme Court in 1931 granted restricted permission to New York to divert not more than 440 mgd.

Beginning in 1925, the four states attempted to work out a compact under which the waters of the Delaware River and its tributaries would be apportioned among them.

The Interstate Commission on the Delaware River Basin promulgated the so-called "Incodel" Plan in 1950. The states, however, were never able to agree on a compact which would adequately protect the interests of all of them.

Delaware enacted legislation as proposed by the plan. New Jersey enacted different legislation amending the Plan in important particulars. New York enacted its own version of the legislation, making amendments that would vitally affect the interests of Pennsylvania and New Jersey. Pennsylvania, already faced with a disagreement among the three other states as to what the plan should be, passed no legislation.

It being apparent that agreement on a compact could not be had without a further extended period of negotiation, New York City, in 1952, petitioned the U.S. Supreme Court to revise its 1931 decree so as to permit the city to divert another 360 mgd, making a total desired diversion of 800 mgd. Last June this permission was granted with proper conditions and limitations to safeguard for the future the rights of the other states (ENR June 10, 1954, p. 24).



DELAWARE VALLEY—No state can divert water if it will harm another.

In its 1954 decree, the Supreme Court called for the appointment of a River Master to see that the operations on the river are proper and to collect information to guide the future. The River Master is Mr. Carl G. Paulsen, chief hydraulic engineer and chief of the water resources division of the U.S. Geological Survey.

• **Look at the record**—In recent months and more or less related to the Supreme Court decree there have appeared in newspapers and technical journals a number of statements and discussions of the Delaware River problem which seem to the authors to be so limited as to be obscure and to call for elucidation.

This discussion is presented in an effort to round out such statements, to indicate fundamental considerations, to describe facts as well as conjectures, and to state the problem and the related answers as fairly and impartially as possible.

An editorial in the June 17 issue of ENGINEERING NEWS-RECORD starts with the question: "Why did the Compact Fail?" Reference is then made to the so-called Incodel Plan and asks why Pennsylvania would not accept it. This is an important ques-

(Continued on page 36)

. . . Needs will determine water use

tion that cannot be answered unless the record is fully examined.

In a study of the Delaware River problem, the following documents are especially important:

1. The report of the special master, Charles N. Burch, in the 1930 case.
2. The opinion and decree of the Supreme Court of the United States in the 1930 case.
3. The report of the special master, Kurt F. Pantzer, in the 1952 case.
4. The decree of the U. S. Supreme Court in the 1952 case.

These documents, taken with the petitions, answers, testimony, and briefs of record in the two cases, are as competent, fair and brief statements of the problem as are now available.

• **Need should determine use**—We believe that ultimately the water needs or the relative water needs of the interested populations and industries will control and determine the use of the river. To comprehend the Delaware River problem, it is necessary to consider not only facts, but also doctrines, applicable principles of law, and forecasts of future conditions.

If there is any brief solution of the problem, it is, in our opinion, that the need for river water for all its various uses and locations, will determine for whom, for what purpose, and to what extent the water need is to be satisfied. Water supply is the first need.

Both special masters agreed that the doctrine of fair and equitable apportionment should prevail, and not the common law of riparian rights. The reports of the two masters did not specifically define this doctrine.

Special Master Pantzer recognized the possible future necessity of modifying "the Decree." He stated "that (1) the allowance of a New York diversion of 440 mgd should neither constitute a prior diversion nor give any superiority of right and (2) the State and City of New York must take 'the risk of the future' that their plan might require modification."

• **Damage should limit use**—How shall the reasonableness of a diversion and the extent of injury be determined? If these matters are decided mainly on the basis of the water needs or the relative water needs, we suggest that the meaning of the doctrine of equitable apportionment is expressed by the following statement:

> **No State can divert water from a river unless the diversion causes no unreasonable injury, damage, or harm to the needs of another State.**

Mr. Greeley has estimated that the quantity needed for water supply by Pennsylvania and southern New Jersey in 1993 would be 1,213 mgd. In his direct testimony he said: "Although harm will not at this time be caused to Pennsylvania by the proposed New York diversion and release, my studies clearly show that the time will come when the water needs of the inhabitants of Pennsylvania in the Delaware River basin will be harmed and restricted and that, therefore, Pennsylvania cannot accept the present New York plan unless it is clearly understood that the proposed diversion will not be considered as permanent and perpetual and that the present plan will be fully adjusted, when necessary, so as not to interfere with the needs of the lower basin.

"In view of the large expenditure which New York proposes to make for the low Cannonsville Dam and the related conduits and other works, it is only fair that they should be fully apprised at this time of the likelihood that the total diversion of 800 mgd from the basin by New York, will, in the future, cause damage to Pennsylvania."

As regards water supply, the 1954 decree is, on the whole, acceptable to all of the four abutting states. Because no present damage to the water rights of Pennsylvania and southern New Jersey was proved, the petition by New York was granted. The decree made no decision as to equitable apportionments, but left this for future determination under the circumstances prevailing at that future time. The real meaning of the Montague formula (which is the procedure offered by New York for regulating the flow of the river at Montague, N. Y.) is that it gives New York some portection so far as it tends to postpone the time when "the risk of the future" will become real. The Montague formula is in effect the price New York is willing to pay and which New Jersey and Pennsylvania are willing to take as a fair price for giving New York temporary permission to divert a limited quantity of water.

Mr. Greeley estimated when the proposed New York diversion would injure the water needs of Pennsylvania and southern New Jersey. It appeared that injury, with storage limited to Neversink, Pepacton, and Cannonsville Reservoirs, would start in 1978.

• **Compact not now suitable**—Why did the compact fail? The answer is that the present water needs of the four states are not sufficiently compelling to justify the loss of independence and the control of future water rights consequent to participation in a rigid compact. Too many imponderables are involved to permit the reaching of final conclusions at the persent time, either by way of contract or by way of court decree. The Compact plan failed because it did not meet the present situation as well as jurisdiction by the Supreme Court of the United States.

The all important difference is that a compact signed by four states and approved by Congress can be modified or repealed *only* by the unanimous consent of the four states; whereas, under court jurisdiction, any of the states may at any time ask to have the decree of the Supreme Court modified because of changed conditions and may expect a fair and enforceable answer.

The report of Special Master Pantzer, which discussed attempts to achieve a compact, has been misconstrued in some quarters as is evident by the following quotation from an editorial in ENGINEERING NEWS-RECORD, July 29: ". . . A higher, more preferable sanction, says the report, is coextensive legislation—an interstate compact." The report says nothing of the kind, and nothing of the sort could be derived by any proper construction of anything which the Special Master said.

It is difficult to conceive of an interstate compact that could avoid an agreement as to the future allocation of the waters of the Delaware for all time. Once any state becomes a party to such a compact, there is no method by which the state might later withdraw from it.

And, if the four states involved in the abortive attempt to prepare an interstate compact had actually signed it, obviously there is no way by which, through judicial decree, any signatory state could later have been relieved of its obligations and agreements thereunder.

• **Valley grows fast**—The Delaware Valley has been growing at a pace greatly exceeding the growth of the New York City area. Its ultimate water requirements can be estimated, but not with assurance. When the estimates of the future water needs of this area were made during the 1931 litigation, it was believed that Pennsylvania would never require more than 750 mgd. In 1953, these estimates had increased to upwards of 1,200 mgd, and, if the industrial impetus touched off by the construction of the Fairless Steel Works at Morrisville should be even greater than is now predicted, the needs of southeastern Pennsylvania may far exceed the 1953 estimates.

There is no dispute that the water

(*Continued on page 40*)

SMS

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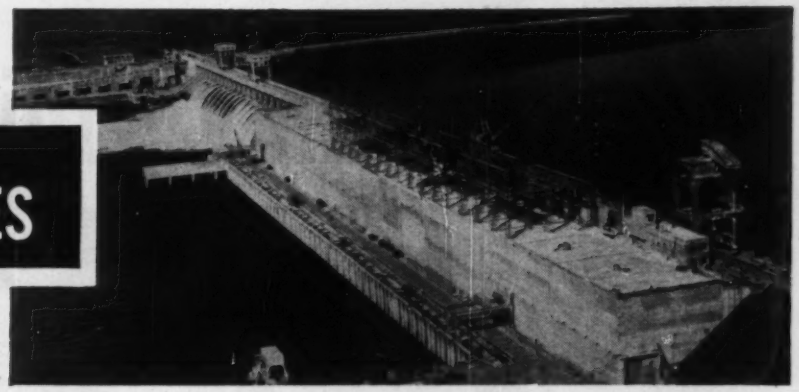

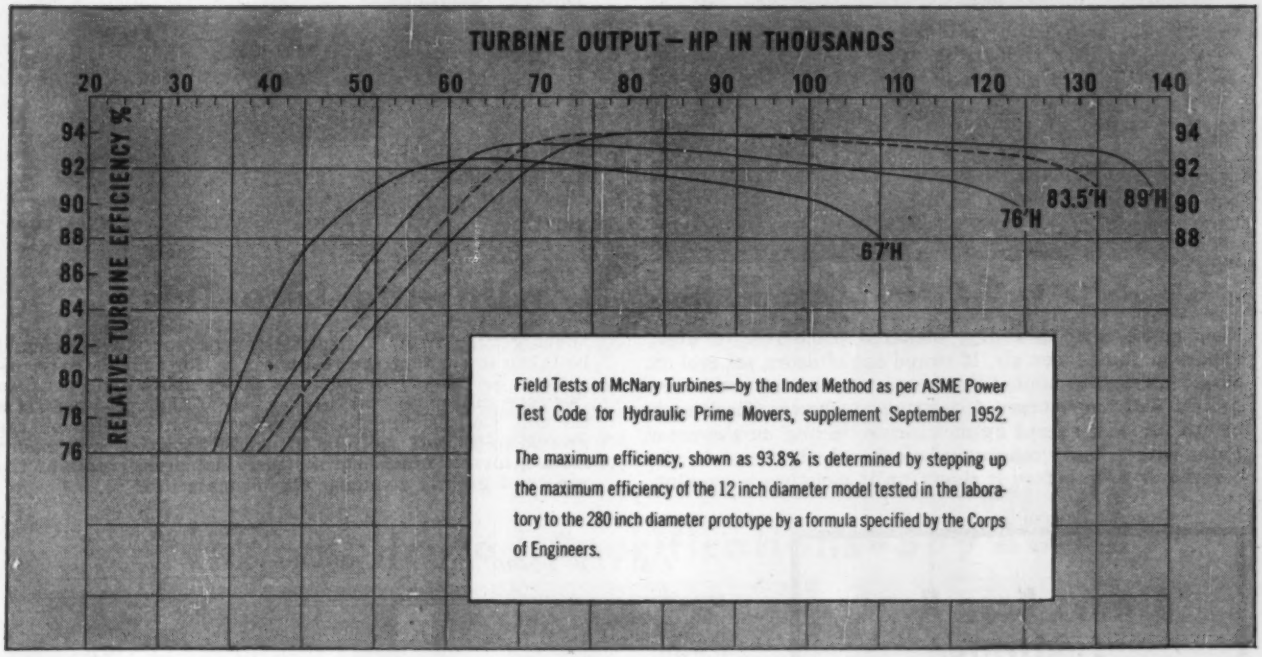

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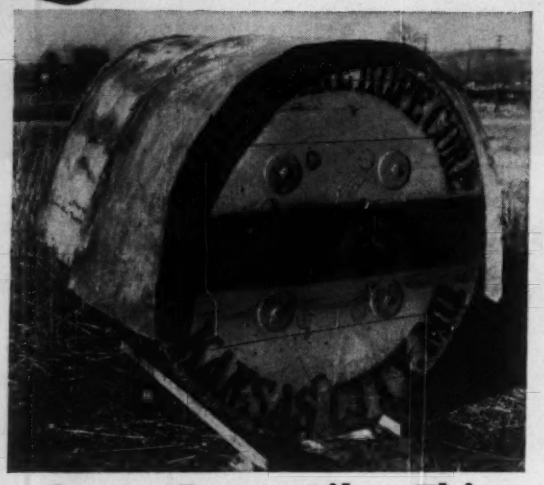
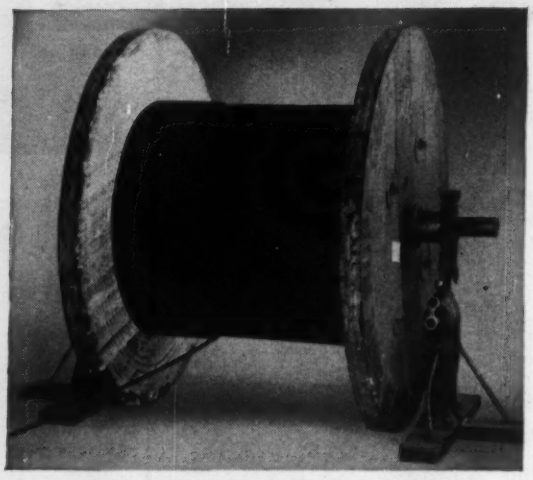


Store Rope Like This

Keep spare rope in a dry, sheltered place free of dust, vapors or fume-laden air. If stored out of doors, set reel on blocks off the ground. Clear away weeds and grass and protect with a waterproof covering as shown. Check each month for rust caused by moisture collecting on the rope. Paint with a heavy crankcase or cylinder oil if rust is discovered or even before it shows up if moisture is present.



Unwind Like This

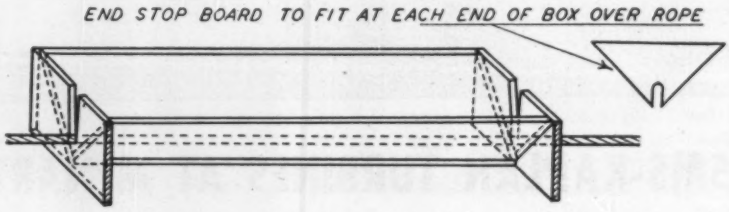
When getting ready to install the rope, special care should be taken to see that the reel is set up for smooth, easy unreeling. Set reel up on jacks as shown above and unreel so the rope pulls off from the bottom of the reel—*not* from the top. Coils should be put on a swift or rolled on the ground to pay off the rope. Kinks or "doglegs" may result from incorrect unreeling, seriously damaging wires of the rope and greatly reducing the ultimate life.

Always Keep Rope Lubricated

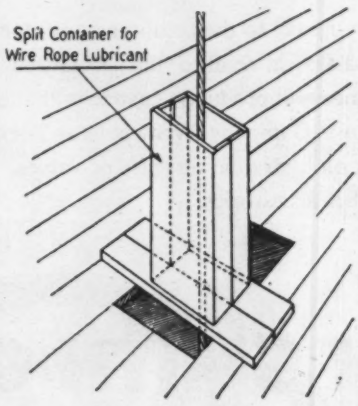
Rope That Is Stored for long periods of time should be lubricated during installation. If it is not possible to lubricate stored rope very often, apply a sealing compound to hold the lubricant that is already present.

Rope In Use can be lubricated most economically without removing it from the equipment on which it is operated. Lubricate rope as often as it needs it—service conditions determine the frequency.

Use Lubricant Hot or Cold, depending on its penetrating qualities. Your local oil company engineer will be able to recommend an oil that will actually penetrate to the working parts of the rope, and not just form a coating that peels off the first time your rope runs through a sheave.

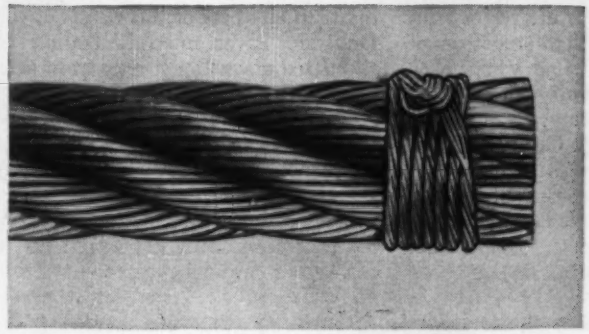


Two Home-Made Oiling Devices



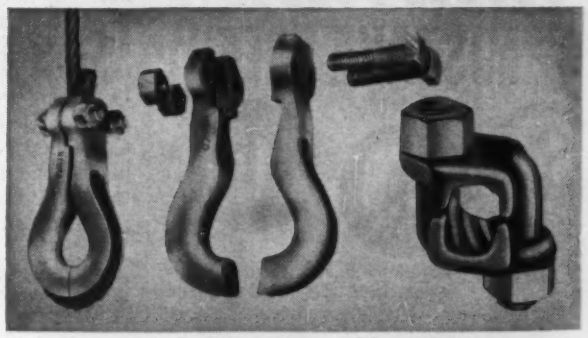
These two oiling devices can be used without removing the wire rope from the equipment on which it operates. One is for vertical ropes, the other for horizontal ropes.

extra service from *Wire Rope*



Seize Tightly For Cutting

Cutting can throw the strands out of fabricated position and, in time, result in kinks or doglegs. Seizing the rope securely before cutting, as shown above, assures that no movement of the strands can occur when you make cuts. Because most ropes are now preformed, and stress free, only one seizing wire at each side of the cut is needed.



Attaching By Clipping

The fittings you use on wire rope can handicap it or enable it to work at full efficiency. Fittings which derive holding power by crimping action are harmful to the rope. Shown here are two rope clamps. One is a combination clamp and thimble. Both provide snug saddling of the rope and grip larger and uncrimped bearing surfaces so tightly that the loads are carried almost solely by the force of friction.

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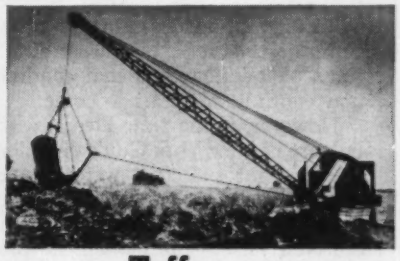
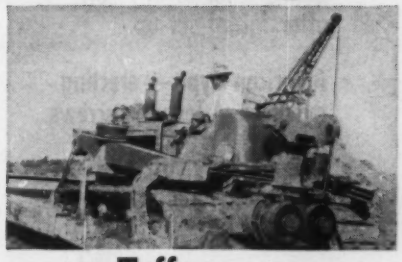


Tuffy Dragline

Outer wires offer large area to resist abrasion . . . inner structure made for flexibility. The result is a rope that casts freely, fights off shocks and line pulls.



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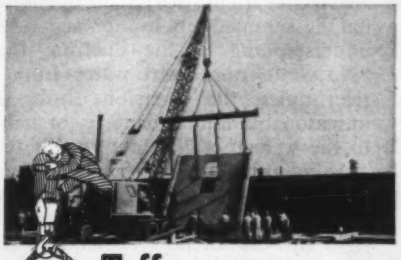

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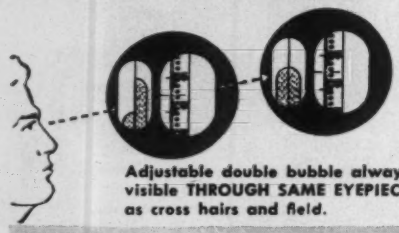

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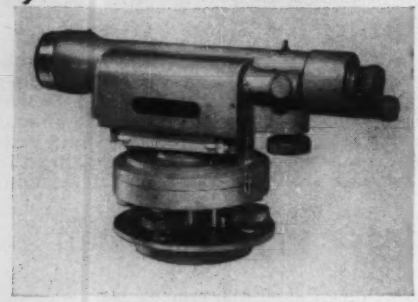

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. . . Needs don't justify compact now

supply available from the Delaware River and its tributaries is not unlimited. If the requirements of southeastern Pennsylvania should greatly exceed present predictions, and, if the needs of northern New Jersey should prove to be as great as or greater than now predicted by that state's engineers, the day will come when New Jersey and Pennsylvania will be compelled to join in asking the Supreme Court that New York City's diversion out of the Delaware River Basin to the Hudson River Basin be greatly curtailed or completely eliminated.

It is not realistic to believe that New York City, once having been granted the right to take a part of its water supply out of the Delaware River, would voluntarily agree to discontinue such taking. However, that some day New York City may be compelled to cease drawing water from the Delaware is implicit in the language of Mr. Justice Holmes in the 1931 opinion that New York "takes the risk of the future," and in the 1954 decree.

New York's taking is permissible only under the doctrine of *equitable* apportionment.

• **Present decree no final bond**—What is equitable in 1954 may become completely inequitable in the year 2000. Today it seems entirely feasible to permit New York to divert hundreds of millions of gallons a day out of the Delaware River Basin to New York City provided it makes certain compensating releases downstream in times of low flow; and that condition may continue for years to come.

However, if the time arrives when, because of New York City's diversions, there is not sufficient water to economically and adequately supply southeastern Pennsylvania and southern New Jersey—and perhaps northern New Jersey—it will no longer be feasible and, therefore, no longer equitable to permit New York to divert the quantities specified in the 1954 decree, or, perhaps, any quantity.

If and when this comes, resort can be had as a matter of right by the states within the watershed to the Supreme Court of the United States for relief. Designedly, the 1954 decree does not finally settle the rights of the respective states to waters of the Delaware River, and it would be fantastic to expect anyone, under the conditions which have been outlined, to write a final decree or an inflexible compact at this time.

These are the underlying and basic reasons for the sentence in the 1954 decree of the United States Supreme Court, "Nothing in this decree shall be deemed to constitute an apportionment of the waters of the Delaware River among the parties hereto."

Were Pennsylvania and New Jersey, at the present time, to sign away their rights to any part of the waters of the Delaware River in consideration of stipulated downstream releases in periods of low flow, they might very well, at some future time, wake up to realize that they had sold their "birthright for a mess of pottage."

The device of a compact is admirable in cases in which all the parties are in possession of sufficient facts to justify an ultimate agreement, and all have equally irresistable needs. That is not the case as far as the Delaware River is concerned.

• **Satisfies present needs only**—If the application of the doctrine of equitable apportionment in a particular case requires a determination that the use or diversion of the river water by one State shall not unreasonably injure another, we are of the opinion that the water needs or relative needs of the inhabitants and industries within the watershed will be the controlling element in the decision.

As regards the Delaware River, our studies of the facts and of the applicable principles of law lead to the conclusion that there are no facts or present water needs to justify the establishment of a compact at this time and that the needs for water supply of the lower basin are fully protected and confirmed by the Decree of 1954.

In our opinion, the present status of the Delaware River problem fully and fairly meets the present situation, fully and fairly protects the rights, interests, and water needs of the abutting states, and by its flexibility provides fairly for the future.

Thus, New York satisfies a water need without injury, at this time, to the other states and this grant to New York is not permanent nor perpetual in any way and the future water rights of the other states are not lessened in any degree. The matter, in our opinion, is summed up by our suggested understanding of the doctrine that "No State can divert water from a river unless the diversion causes no unreasonable injury, damage, or harm to the water needs of another State."

In contrast to the flexibility provided through jurisdiction by the Supreme Court, a compact is necessarily rigid and cannot be acceptable to the several conflicting interests unless the water needs of each are compelling and are by each clearly foreseen for the future.

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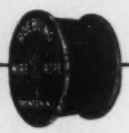

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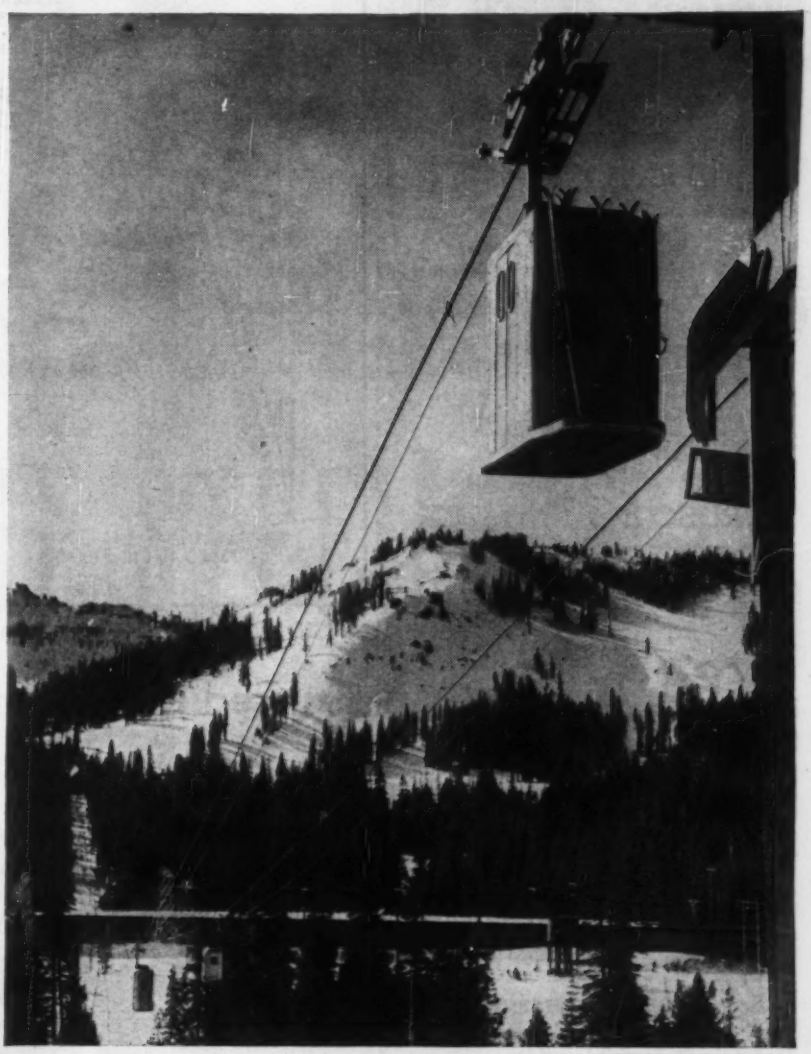
Aerial Tramway—Access to Winter Resort

This year in California's Sierra Nevada a 3200-ft long aerial tramway—the Magic Carpet—will have its first full winter's operation. The bi-cable, gondola-type tramway—an installation unique in the United States—provides all-weather access to the Sugar Bowl Lodge. Snow depths up to 20 ft have at times made transport from U. S. Highway 40 and the Southern Pacific's main line almost impassable by usual overland methods—mostly weasels and tractors and sleds. In addition to guests for the lodge, the tramway will carry school children, workmen, shopping-bent housewives and freight.

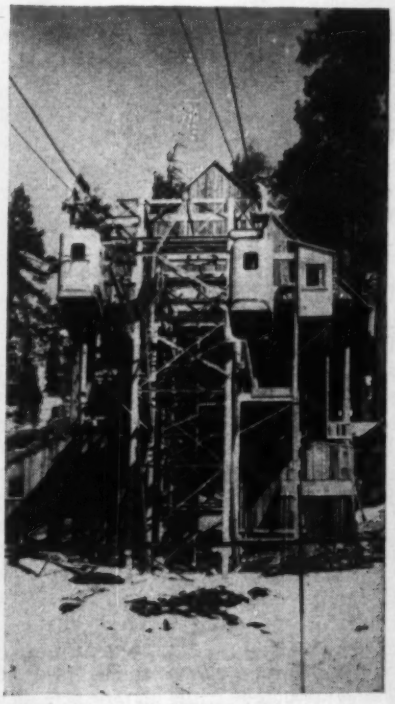
The twelve gondolas have steel frames covered by an aluminum skin. Loading and discharge is accomplished with the cars at rest. Dual automatic gripping devices attach to the continuously moving ¾-in. dia haul cable. Track cables are 1⅜ in. dia flattened steel strands. Four structural steel towers form the intermediate supports.

A 75-hp electric motor powers the tramway with maximum speed reaching 400 fpm. With all 12 cabins on the line, capacity reaches 300 persons an hour.

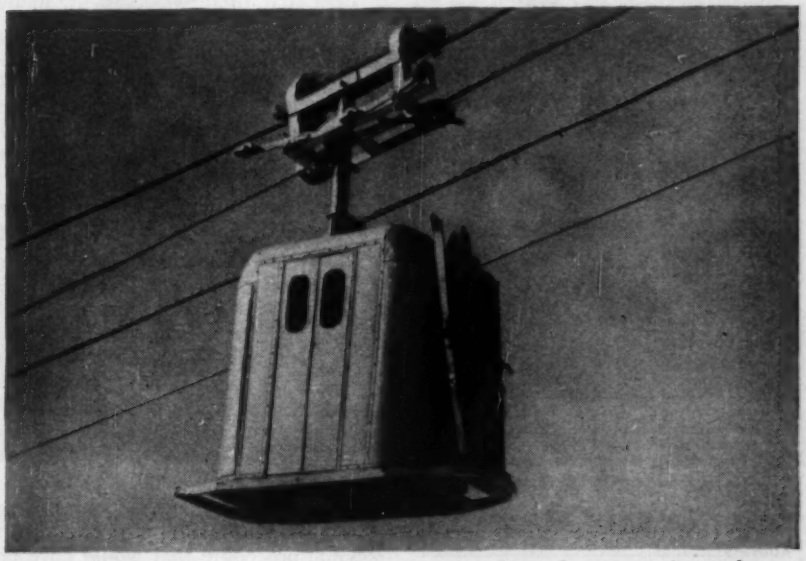
The tramway was built for the Magic Carpet Corp. Design, manufacture and erection was by Heron Engineering Corp. of Denver.



GONDOLA CARS suspended from an aerial tramway move passengers and freight from U. S. Highway 40 to the Sugar Bowl Lodge at the Donner Pass area of California's Sierra Nevada. Gondola-type tramway is unique in the U. S. Snowsheds in background protect Southern Pacific's main line.



TRAMWAY STATION is used for loading and unloading gondola cars that are uncoupled from haul cable during such operations. Tramway speeds are up to 400 fpm. Cars carry 300 persons an hour.



GONDOLA CARS have steel frame with aluminum skin and can carry six people.

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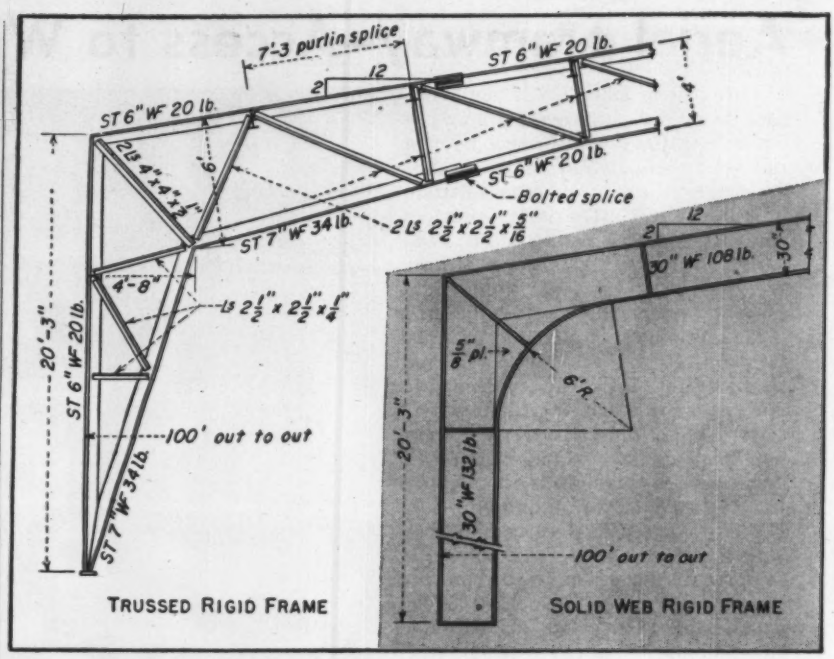

RIGID FRAMES of two types were priced for a 100-ft roof span, and costs showed . . .

Trussed Rigid Frames Save Money

Ralph W. Craig
Consulting Engineer
Sioux Falls, S. D.

Before a final selection was made for the structural steel roof framing for the new Redfield, S. D., armory (requiring 100-ft spans on 20-ft spacing) cost estimates were prepared for both open-web and solid-web rigid frames.

The study showed that the trussed frames would be economical, and this construction was used. Even though the open-web frames cost more to fabricate, they required so much less steel that there was actually an overall saving.

The trussed frames have a depth of 4 ft at midspan and of 6 ft at the haunches. Columns, also of trussed construction, taper from a few inches at the base to nearly 5 ft at the knees. Web members are welded to the chords. Bracing to provide lateral stability for the lower chords of the frames consists of angle knee braces on selected purlin lines.

• **Two-step design**—The general shape of the frames was determined mainly by basketball requirements. (The armory also serves as the local public school gymnasium.)

Design of the framing was carried out in two steps:

1. A preliminary value was obtained for the horizontal reaction by the same procedure that would have been used for a solid web. This was used to estimate stresses, on the basis of which sizes of truss members were selected for a preliminary design. The methods outlined in the American Institute of Steel Construction publication, "Rigid Frames in Steel," were used for the preliminary steps.

2. A more accurate value for the horizontal reaction was computed, taking the trussed construction into account. The new value, it turned out, was in good agreement with the preliminary calculation; so only one truss member—the bottom chord at the haunch—had to be increased in size.

• **Alternate design compared**—To obtain realistic cost and weight comparisons between this trussed frame and a solid-web frame, for the same loads and 100-ft span, a complete design for a 30-in.-deep, girder frame was also prepared. This was not the lightest solid-web design that could have been used. A frame with a larger-tapered knee for example, would have required less steel. However, fabrication costs would have been higher. In any case, the weight of the solid-web frame could not have been reduced sufficiently to affect the result of the cost comparison.

A girder frame could have been constructed with a midspan depth only half that of the trussed frame but the cost would have gone up, because of the increase in steel requirements. In turn, the trussed-frame depth of 4 ft is less than half of the

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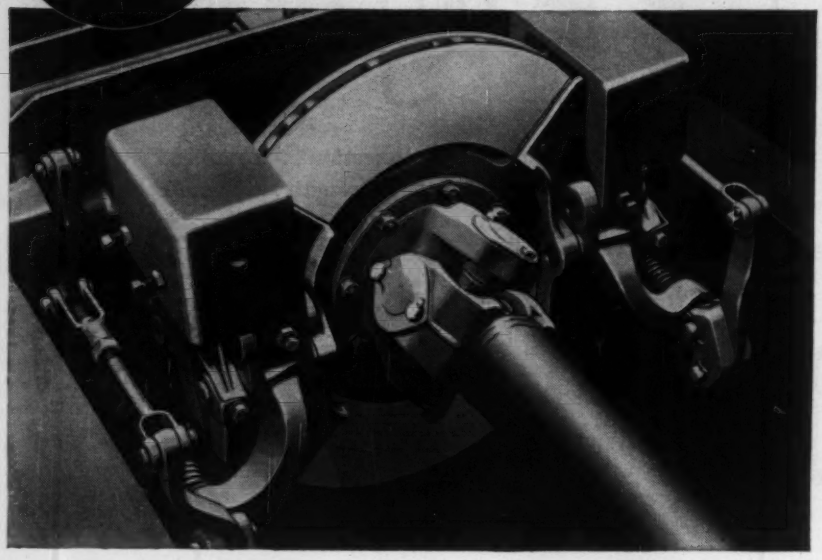

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depth that would have been required for simple truss and column construction.

Calculations showed that the 30-in. girder frame took nearly 8 tons of steel, while the trussed frame called for just under 4 tons. Weight of purlins, ties and appurtenances was not included in these figures, because it would have been about the same for either type of structure. It is noteworthy that the weight of the trussed frame averages 4 psf, which is less than for most conventional truss and column designs.

• **Net savings**—The steel fabricator reported that a premium of about two cents per pound was paid for the trussed design. Yet, the net saving with open-web frames comes to about $600 per frame, despite the premium.

The frames were fabricated and erected by Hassenstein Steel Co., Sioux Falls, S. D. The armory was designed by Harold Spitznagel and Associates, of Sioux Falls. Neil Bergstressor, of the author's staff, prepared the structural design.

Beach sanitation checks questioned

Present methods of checking bathing pollution were challenged at a recent meeting held at Columbia University. Mr. Harold Romer, chief of the division of waste disposal and pollution control for the New York City Department of Health, listed some significant weaknesses of sampling and testing which may occur. He also urged development of uniform guides to pollution evaluation.

First weakness may occur, said Mr. Romer, if the laboratory uses too few portions per dilution of the samples tested for bacteriological content; greater accuracy is obtained by using multiple portions of dilution.

Improper evaluation of the polluting effects of the tides is another weakness in present practice; in New York's Coney Island area, the incoming tide has yielded over eight times as many coliform organisms as the outgoing tide.

Neither have the effects of the range of the tide been properly evaluated, since tidal ranges of 6 ft may carry almost four times as much pollution as one of 3 ft.

Experienced statisticians should be consulted in determining the number and frequency of samples which are required to arrive at a properly weighted average.

The meeting at which Mr. Romer spoke was held by the Sanitary Engineering Group, a technical branch of ASCE's Metropolitan Section.

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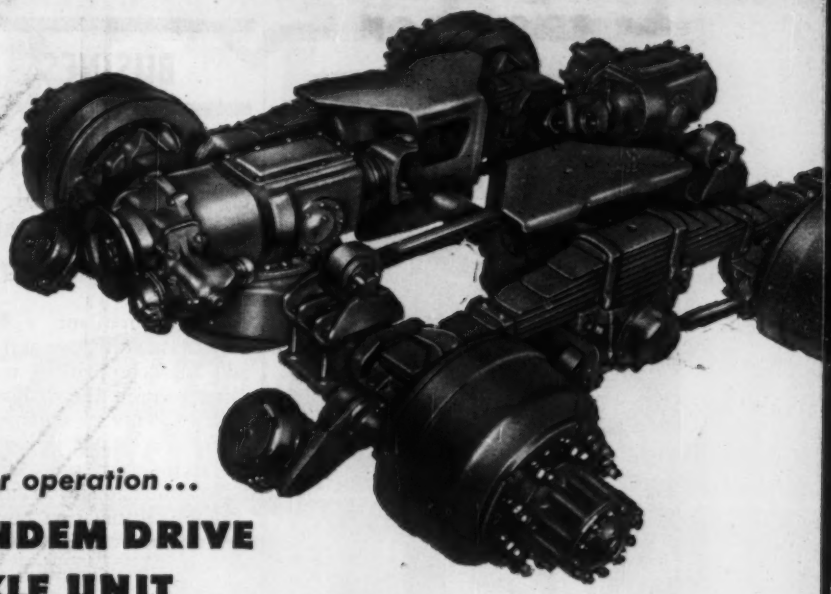

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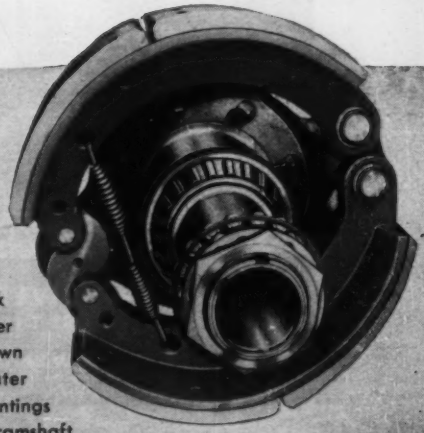

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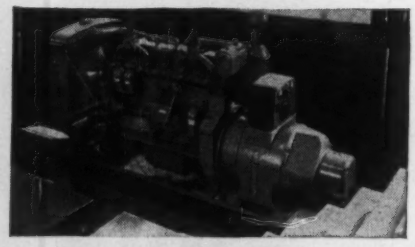

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BUSINESS PROFILE

Fledgling Organization Gets a Parent

Concrete Industry Board—a power in its home city—takes on a managing director to lead drive for better concrete

After three and a half years of growth, in influence and membership, and an accompanying remarkable improvement in the quality of concrete—New York's Concrete Industry Board was ready this week to reach for its final stature as a full-fledged, fully professional organization:

The organization announced appointment of a nationally-known engineer—Vice-Admiral John J. Manning, former chief of the Navy's Bureau of Yards and Docks—as managing director, and establishment of its own headquarters office (at 220 East 42nd St.).

At the same time, Wallace K. Harrison, internationally-known architect, was seated as a member of the CIB's board of directors, to represent directly the American Institute of Architects.

The American Society of Civil Engineers is already represented on the board through Emil H. Praeger.

VICE ADMIRAL MANNING—He'll be a stern, but helpful parent.

• **Beginning to move**—For an organization that had its genesis (ENR July 3, 1952, p. 101) in the annoyance of New York City housing and school engineers at the lack of uniformity in concrete and in the real concern of many contractors, laboratory men and ready-mix concrete suppliers, CIB has come a long way.

And, although the organization has never devoted itself to lengthy scientific papers or pronouncements, it has achieved real results in its short life. The same authorities who criticized concrete now agree that its quality has improved beyond their hopes.

CIB has achieved its results by jabbing pressure on the many sore points in the complex construction industry that have to do with concrete and its use; by refusing to clear anyone of blame for an admittedly bad situation, by assembling representatives of all facets of the industry for open, frank—sometimes uncomplimentary—discussions.

• **Parent appointed**—And now, in Admiral Manning's words, the time has come to appoint a parent for "a lusty, strong infant, who has been nursed through his swaddling days by a group of fond, earnest, but often busy godparents."

"It's time," says Manning, "to give this lusty youngster some training, some help, and a good deal of guidance. I expect to be a good parent—which includes the judicious use of the hairbrush to the proper part of the body when occasion demands."

A 32-year veteran of naval engineering and construction who wound up his service career in 1949 after a four-year tour as chief of the Navy's construction forces, and an engineer for several large contractors since his retirement, Manning is well fitted for the new job.

Much of his working life has been intimately associated with concrete and its uses; his opinions are respected in the field.

A native of Troy, N. Y., and a civil engineering graduate of Rensselaer Polytechnic Institute, he spent his first several years out of school as an engineer with contracting organizations, entered the Navy in 1917 and rose through its engineering ranks to head the Bureau of Yards and Docks. Since retirement, he has again been engaged as an engineer with major contracting firms, on work throughout the Western Hemisphere.

• **Objectives**—After lengthy consultations with CIB's board, and preliminary familiarization studies of the or-

ganization, Manning was ready to discuss a several-point future for the organization.

Among the things he sees are:

1. Certification by CIB of ready-mix plants and of laboratories, and enforcement (under threat of withdrawal of certification) of standards of practice, operation, equipment.

2. Research and consultation to set up approved standards both for ready-mix plants to be certified and for use of engineers and architects in drawing up specifications for jobs where concrete is to be mixed on the job.

3. Improvement in inspection services of owners and municipal authorities.

4. Steady pressure for discussion, exchange of ideas and improvements by all factors involved in the problem of better concrete.

"We have among our 167 members representatives of all phases of the industry," Manning comments, "and there's no reason we can't make this work, for the good of all concerned."

• **Growth**—Meanwhile, CIB has been giving ample signs of growth.

A quick check of mail shows letters from groups in eight states that have expressed interest in forming similar organizations and are seeking information on how the New York group was organized and is functioning. Additionally, CIB officers have made speeches in at least two other states on the same subject, and Roger Corbetta, four-term board chairman, will address a national convention of the National Crushed Stone Association early this year.

CIB officers emphasize that their group is no "trade" organization in the ordinary sense of that title. It is concerned, they say, with a product that's basic to a whole industry—and the improvement and standardization of concrete, therefore, is a professional matter, for all concerned.

APWA-AGC Standard Forms

Uniform public works engineering construction forms, developed by the National Joint Cooperative Committee of the American Public Works Assn. and the Associated General Contractors of America (ENR Sept. 30, 1954, p. 21), are now available.

Designated as APWA Standard Form A and AGC Standard Form 10, prices are 25 cents each, $2.75 for 12 and $20 for 100. They can be procured from AGC Headquarters, 1227 Munsey Bldg., Washington 4, D. C.

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Kerrigan also offers you a complete *custom* service: shop drawings are sent for your approval and grating is fabricated to your exact specifications (with finished grating match-marked for easy installation). Let us send you detailed information. Write now for our new catalog on stainless steel grating containing engineering data.

KERRIGAN IRON WORKS, Inc.
General Sales Office — 274 Madison Ave., New York City

DORRCO

ON January first of this year, Dorr-Oliver Incorporated became a corporate entity through the merger of The Dorr Company, Engineers and Oliver United Filters Incorporated. Not a merger in name only, the combined staffs, engineering skills and facilities of the two organizations are being welded into a single unit, with a vastly increased capacity to serve on a worldwide basis.

Both companies have their roots in gold ore metallurgy. The Dorr Company was founded by John Van Nostrand Dorr on his early inventions, the first of which was developed in 1904 to solve the problem of mechanical classification of gold ores. Oliver United had its beginning in 1907 with the development of the first successful continuous vacuum filter by Edwin Letts Oliver and its practical application to the cyanide process. Since their inception, both companies have grown steadily in technical stature to positions of leadership in their ever-widening and complementary, fields.

This cumulative, combined experience . . . coupled with a progressive faith in the future . . . is the strength of Dorr-Oliver. For present and future clients alike throughout the world it means better solutions to process problems in those fields of metallurgical, chemical, industrial and sanitational engineering in which Dorr and Oliver have specialized for nearly half a century.

DORR-OLIVER
INCORPORATED
STAMFORD, CONNECTICUT, U. S. A.

"Gunite" ..... the sand-cement product of the "CEMENT GUN," for Concrete and Masonry Repairs, Pre-Stressed Tanks, Steel Encasement and for lining Reservoirs, Sewers and Tunnels.

CEMENT GUN COMPANY
"GUNITE" CONTRACTORS
GENERAL OFFICES—ALLENTOWN, PENNA., U.S.A.
MANUFACTURERS OF THE "CEMENT GUN"

BOOKS

Water from the Land

VEGETATION AND WATERSHED MANAGEMENT—By E. A. Colman. 412 pp. The Ronald Press Co., 15 East 26th St., New York 10, N. Y. $7.00.

This is another commendable effort of the Conservation Foundation to foster primary research by publication of the results of secondary research. In this case, a qualified author, long a researcher into forestry and soil science, tells the results of a one-year intensive appraisal of vegetation and watershed management and its effect on water supply, flood control, and soil erosion.

The book is one of a series of studies by which the Conservation Foundation, an independent research and education organization with backing from the New York Zoological Society and other private sources, hopes to promote water-resource development and conservation.

As a review of present knowledge, this volume describes effect on water yield of vegetative control and puts between two covers—perhaps for the first time—the elements of many separate but related sciences, all with some bearing on water as a product of the land.

The book is complete with maps and charts showing rainfall, runoff, snowpack, vegetative coverage and problem soils across the U. S. It deals with hydrology and the hydrologic effects of certain land uses.

New Engineering Books

MODERN TRAFFIC CONTROL—By Joseph C. Ingraham. 312 pp. Funk & Wagnalls, 153 East 24th St., New York 10, N. Y. $4.50

BIG DAM FOOLISHNESS! The Problem of Modern Flood Control and Water Storage—By Elmer Peterson. 224 pp. The Devin-Adair Co., 23 East 26th St., New York 10, N. Y. $3.50

THE BOMB SURVIVAL AND YOU—By Fred N. Severud and Anthony F. Merrill. 264 pp. Reinhold Publishing Corp., 430 Park Ave., New York 22, N. Y. $5.95

ASTM STANDARDS on Bituminous Materials for Highway Construction, Waterproofing, and Roofing—436 pp. American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa. $4.00

MATERIALS OF CONSTRUCTION—By M. O. Withey and G. W. Washa. 887 pp. John Wiley & Sons, 440 Fourth Ave., New York 16, N. Y. $9.00

The Pavement can mean

The Difference Between *Life* and *Death*

A child hurrying home from school darts into traffic —stumbles and falls! Another tragic headline unless the horrified driver can stop in time!

Drivers depend upon engineers and public officials to build safe roads and streets. This involves many factors, not the least of which is the pavement itself. And drivers *know* they can stop faster, and with less danger of skidding, on concrete.

There is a scientific explanation for this experience of drivers. A nationally-recognized traffic engineering authority measured the coefficient of friction on 19 roads—both concrete and the other most commonly built pavement—in four states. With the average coefficient of friction on dry concrete being 100%, he found that at 40 miles per hour the average on wet concrete was 76.9%. When the other pavement was wet, however, its average fell to 50.8%!

Another safety factor is visibility. Drivers *know* they see better on concrete at night, when the accident rate is highest. They're right. Light reflectance tests show that the light reflectance of concrete is about 20%, that of dark-colored pavement about 5%!

Safety is built into concrete pavement. Its light color gives drivers good visibility. Its gritty texture gives them good traction and skid resistance. Specify it for all main roads and streets—for safety's sake.

PORTLAND CEMENT ASSOCIATION

33 West Grand Avenue, Chicago 10, Illinois

A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work

BETTER NIGHTTIME VISIBILITY. Concrete in foreground reflects four times more light than dark pavement. Motorists can see obstructions, curves, pedestrians sooner, thus have more time to avoid accidents.

"BUILT-IN" SKID RESISTANCE. Concrete's coarse surface texture assures good traction, doesn't turn slick in the rain. It permits safer and quicker stops. Yes, concrete cooperates with tires and brakes.

NEW! The most advanced, best engineered trowel on the market!

Roto-Trowel
FOR FASTER FLOOR FINISHING

STOW

Model G-34 Gasoline
Also available as
Electric model E-34

SEE IT NOW ON DISPLAY! at STOW'S room at the AED convention!

It doesn't take an expert—but it does an expert job

Here's an easy-to-operate unit that practically eliminates the need for hand trowelling. With floating blades attached, STOW Roto-Trowel drives air pockets out of the concrete, brings up the moisture to produce an excellent surface. With finishing trowels in place, adjusted for the specific conditions of the job, the STOW Roto-Trowel provides a smooth, level, even finish.

PITCH CONTROL—provides exact adjustment of trowel pitch while machine is in motion.

PLASTIC GRIPS on wide handle for greater ease of control.

Conveniently located **THROTTLE CONTROL.**

EXCLUSIVE DEAD MAN CONTROL stops trowel blades the instant the operator lets go of the lever. Leaves engine running. Prevents accidents.

GUARDED BELT.

HANDLE ADJUSTABLE to right height for operator. Can be raised vertically for storage and transit.

Briggs and Stratton 4 cycle, "L" head, single cylinder air-cooled Gasoline Engine, 2 H.P., at 3600 R.P.M.

Sturdy **STATIONARY GUARD RING** does not rotate. Permits close-to-wall work. Prevents accidents.

Long lasting, quick-change blades are **REVERSIBLE** for double-life.

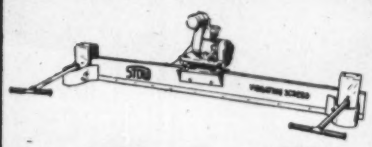
EXCLUSIVE TROWELLING SPEED, 25 to 100 R.P.M.

With **ELECTRIC CHANGE-OVER KIT,** a gas unit can be converted to an electric model in just one hour!

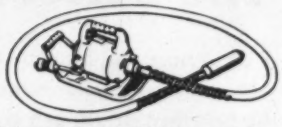
Write today for Bulletin 546 and complete information.

STOW MANUFACTURING CO.

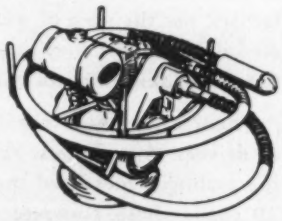
19 Shear Street, Binghamton, N. Y.



Stow Screeds eliminate costly hand puddling, spading . . . leave the surface in practically finished condition.

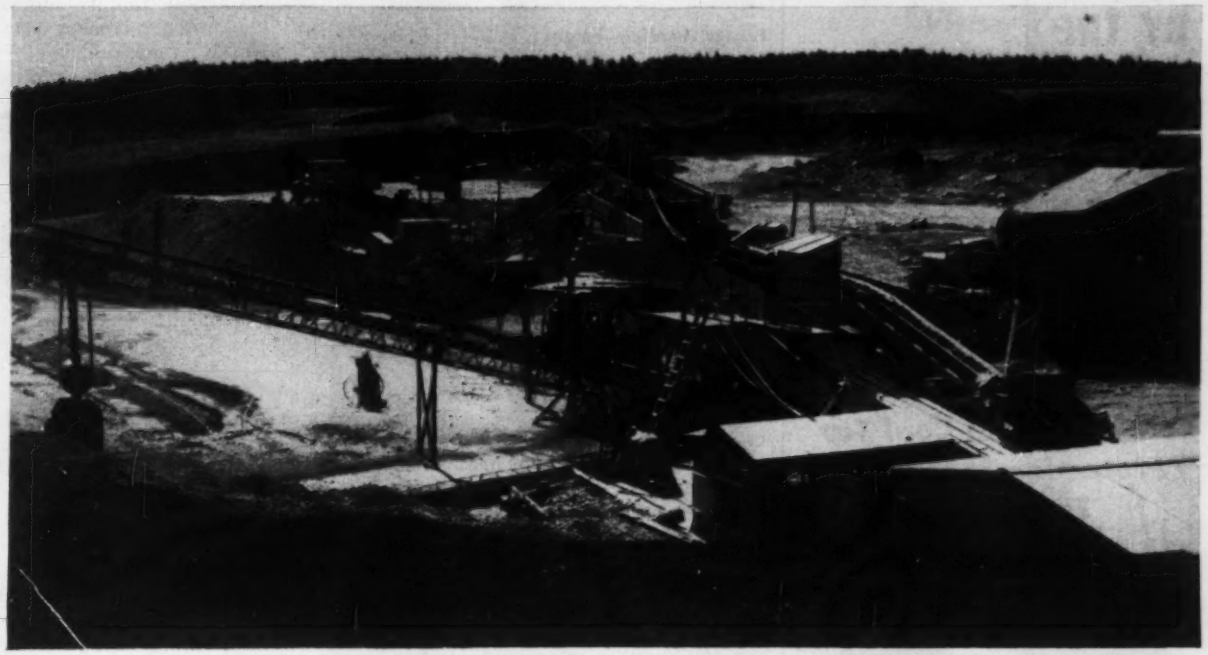


Universal Electric Vibrator model BU . . . convenient, lightweight, efficient vibrator, an asset on any construction job.



AG heavy duty Gasoline Vibrator with plug-in casing connection and combination ring guard.

G40-C Concrete Pedestal Grinder, the perfect machine for finish-grinding quickly and efficiently. Lowest priced portable on the market.



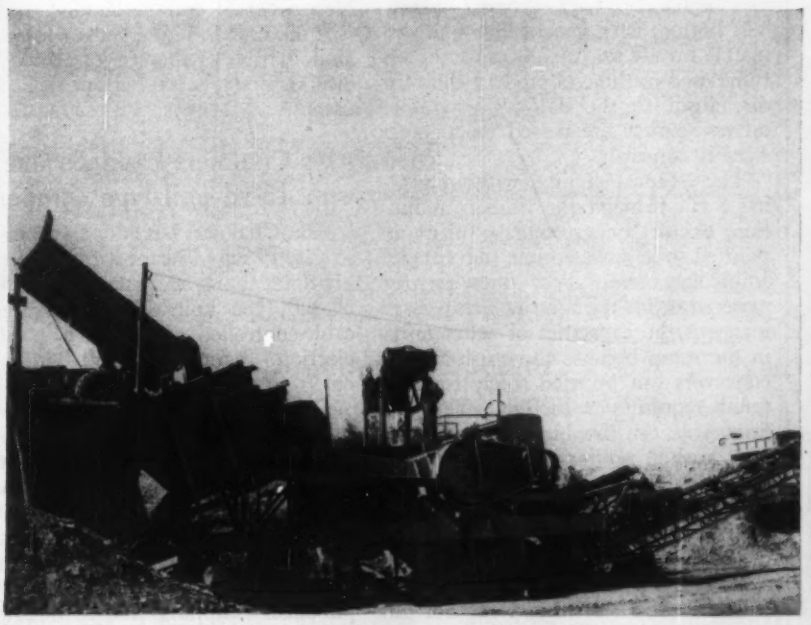
OVERALL VIEW of operations shows a Model 150 PRS primary plant feeding material to stockpile and secondary crusher.

New Primary Helps Build Canadian Army Base

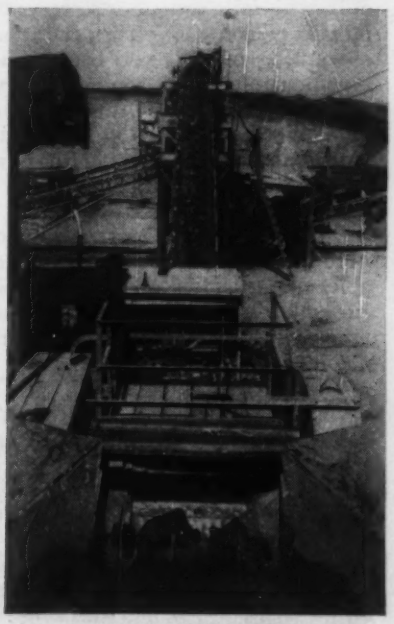
Pioneer's new Model 150 PRS primary crushing plant is getting its trial by fire in preparing stone for all the roads at the Gagetown Army Base, Gagetown, N. B., Can. Under a subcontract from Atlas Constructors, the Dexter Construction Co. of Lancaster, N. B., owners and operators of the plant, are producing 2½-in. minus material at a 5,000 tons-per-day clip.

The peculiarities of the gravel pit selected are such that half of the pit contains material ranging from sand up to 8 in. in size. The other half includes boulders up to 15 x 18 in. A Pioneer 46VE, diesel-electric bottom deck feed, duplex plant works the half containing the 8-in. maximum rock while the new primary plant works the other half containing the larger boulders. Both plants discharge to a common conveyor leading to a loading bin.

The Model 150 was selected be-



PRIMARY PLANT consists of 3x10-ft apron feeder, 20x36-in. overhead eccentric jaw crusher and a 4x6-ft two-deck heavy-duty screen with sand reject deck.



VIBRATING SCREEN increases crusher capacity by scalping only primary material.

SERVICED BY THE MEN WHO SELL IT

Another reason why You can depend on

TAPECOAT®

the Coal Tar Protection in Handy Tape Form

The service behind TAPECOAT is as distinctive as this coal tar coating, itself.

To make this service as dependable as the product, the sales engineer who sells the job also services it. This means that you can count on everything he tells you because he is responsible for the job *personally*.

The fact is, TAPECOAT gives you more lasting protection for your money because it is a quality coal tar product, and coal tar is nature's own defense against corrosion.

Specify TAPECOAT for pipe, pipe joints, tanks, and other vulnerable steel surfaces above or below ground. Its performance record since 1941 merits your complete confidence.

TAPECOAT comes in rolls of 2", 3", 4", 6", 18" and 24" widths. It's easy to apply as our sales engineers will demonstrate.

Write for brochure and prices today.

"Visit us in Booth 716 at the Plant Maintenance & Engineering Show."

The TAPECOAT Company

Originators of Coal Tar Tape Protection

1551 Lyons Street, Evanston, Illinois

Primary Plant Specifications

Feeder loading height	10 ft 4 in.
Clearance under delivery conveyor	7 ft 2 in.
Wheel base	23 ft 2 in.
Travel height	12 ft 6 in.
Travel length	36 ft 1½ in.
Operating height	13 ft 6 in.
Operating length	38 ft 6 in.
Total weight, including power	60,200 lb
Front axle	26,200 lb
Rear axles (tandem)	34,000 lb

cause its design permits feeding and scalping ahead of the jaw crusher with crushed and by-passed material sized on an auxiliary screen. This auxiliary screen passes 2½-in. material to the loading bin but transfers larger material to the duplex plant for further processing.

Actually designed as a portable primary plant to be used ahead of a secondary crushing and screening plant, the Model 150 PRS is equipped with a 3 x 10-ft apron feeder, a 20 x 36-in. overhead eccentric jaw crusher and a heavy-duty 4 x 6-ft two-deck vibrating screen ahead of the jaw. A sand reject deck is included in the screen.

In operation, material is fed by any suitable means to the apron feeder mounted on the rear of the plant. The feeder conveys the dumped material to the top deck of the screen which scalps off material to go to the jaw crusher and passes pit or quarry material that may be handled by a secondary plant. The bottom deck screens fines and pay material ready for use. When fines are to be used in the end product they are discharged to the delivery conveyor, otherwise they are passed through to a reject conveyor.

The removal of fines without passing them through the primary reduction circuit and secondary plant is pointed out as a prime advantage. Immediate removal of fines as pay material or for rejection in many cases increases the capacities of other units in the setup because the crushers and conveyors can be used solely for material requiring reduction. Yet the fines still can be blended with the jaw crusher product at the delivery conveyor if necessary.

A second advantage is found in the ability of the plant to pass slightly oversize rock that can be handled by a secondary plant. This too permits full utilization of the plant for its primary crushing operation.

The power unit and delivery conveyor are mounted on the plant to attain increased portability and rapid setup. The primary crusher may be towed behind a truck or hauled by a truck tractor. PIONEER ENGINEERING WORKS, INC., 1515 CENTRAL AVE., MINNEAPOLIS 13, MINN.

Large-Size Electrical Duct Permits Layout Flexibility

A new industrial type of underfloor electrical raceway has been designed with more than three times the capacity of standard underfloor duct.

A 14-gauge cold rolled steel raceway with a 4x4-in. cross section, Industrial Nepcoduct, as it is called, is designed for heavy-duty wiring in industrial plants where overhead wiring would interfere with normal operations.

The new Nepcoduct's greater capacity is reported to allow a flexibility in plant layout that is not possible with the lesser capacity of standard underfloor raceways. Electrical installations which utilize such an extensive distribution system permit an almost infinite variety of machinery emplacements, since all areas are served by outlets.

The raceway is galvanized and further protected with an acid-resistant clear enamel on interior and exterior surfaces. It is furnished in standard 10-ft lengths and provides 2-in. pipe size, threaded outlets on 24-in. centers permitting the direct insertion of conduit for standpipe service fittings. Complete with junction boxes and a full complement of fittings, Industrial Nepcoduct is fully grounded, industrial underfloor wiring system listed by Underwriters' Laboratories, Inc. NATIONAL ELECTRICAL PRODUCTS CORP., GATEWAY CENTER, PITTSBURGH, PA.

Allis-Chalmers expands line with 15-yd pull-type scraper

Allis-Chalmers has added a 15 cu yd struck, 19 cu yd heaped, capacity rubber-tired, four-wheel scraper to its line of pull-type units. The new rig is cable-controlled and features positive ejection. It provides a 9 ft 8-in. wide cut.

Overall length of Model 315 is 33 ft 5-in. and the width is 11 ft 6¾ in. The overall height is 8 ft 8 in. with blade on the ground, and 9 ft 2 in. when bowl is raised. Rear bowl ground clearance is 20½ in. and front axle clearance 29 in. when 21.00x24 tires —standard for the 315—are used. Approximate shipping weight is 25,850 lbs. ALLIS-CHALMERS MFG. CO., TRACTOR DIV., MILWAUKEE 1, WIS.

Narrow-gage dozer easy to transport

A new angling blade bulldozer has been designed for use with the Caterpillar 74-in. gage D6 tractor. Designated the Balderson Model BAI6X Inside Mounted Angling Bulldozer, it is built to attach to the engine frame of the tractor and use Caterpillar hydraulic or cable controls. According to the manufacturer, with this type of mounting the tracks are free to move up and down over rough terrain without putting any twisting strain on the main frame of the bulldozer and the cutting width, either straight or angled, is narrower than outside beam dozers and permits greater maneuverability, better balance of capacity to power and thus more economical operation for special uses. Greater safety on the highway when moving from job to job is another advantage claimed since the blade may be angled to come within legal limits. BALDERSON, INC., WAMEGO, KAN.

"Exec" Planes Get De-icing Equipment

Wing de-icing boots for installation on the wing and empennage are now available on Aero Commander executive airplanes to facilitate winter flying. Further, blade leading edge shoes and periodic application of Icex No. 6 to these shoes are used to protect the propellers. The C.A.A.-approved de-icing equipment may be ordered as factory installed optional equipment on new 560 Model Aero Commanders and is also available for field installation on both the 560 and 520 models. The wing de-icing boots are actuated by an engine driven vacuum pump that is part of a dual vacuum system for the aircraft. This system is also available in kit form, separate from the de-icing kits. The entire de-icer boot installation adds about 95 lbs of weight to the plane. The propeller anti-icing kits are available for both two- and three-bladed propellers. Aero Design & Engineering Co., Box 118, Bethany, Okla.

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Over 50 years of engineering skill and production know-how from the FOUNDERS of the open-grid flooring industry.

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A "fitting" grating for every purpose.

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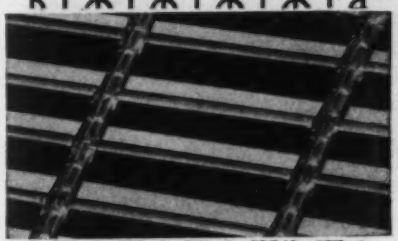
Riveted, pressure-locked and welded Irving gratings in steel; and Irving aluminum gratings in riveted and pressure-locked types, designed for your industrial flooring problems.



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Irving engineering procedures which assure precisely fabricated panels designed from your floor plan or sketch for quick, easy installation.

YOU GET...
Prompt delivery anywhere.

IRVING SUBWAY GRATING CO., INC.
ESTABLISHED 1902

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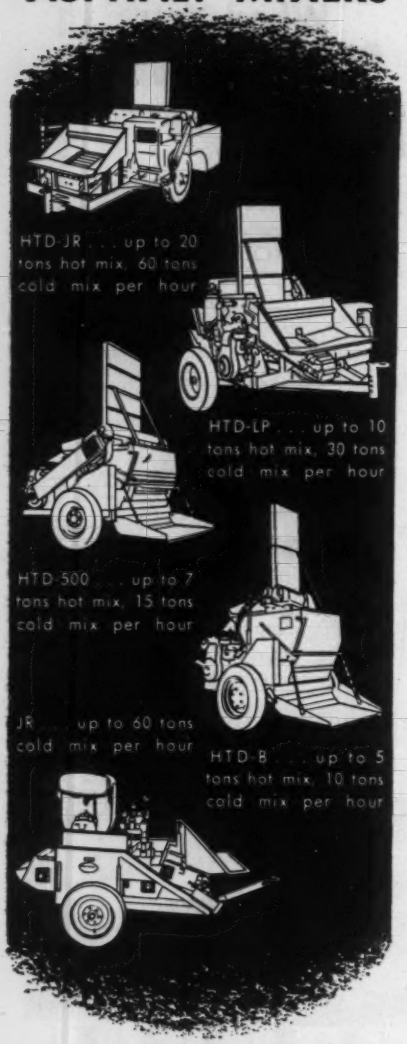
McConnaughay
ASPHALT MIXERS


HTD-JR . . . up to 20 tons hot mix, 60 tons cold mix per hour
HTD-LP . . . up to 10 tons hot mix, 30 tons cold mix per hour
HTD-500 . . . up to 7 tons hot mix, 15 tons cold mix per hour
JR . . . up to 60 tons cold mix per hour
HTD-B . . . up to 5 tons hot mix, 10 tons cold mix per hour

. . . for resurfacing and patching in any season

DESIGNED for economy of operation and fast production, the McConnaughay line of Multi-Pug Asphalt Mixers meets every need for most resurfacing as well as all types of pavement patching. Working on location, these mixers provide the exact amounts of materials needed (never too much or too little); and McConnaughay HTD models are the only mixers which effectively remove both moisture and solvents from bituminous mixtures . . . positive assurance that patches and resurfaced areas will set up hard. Write, wire or 'phone for details and specifications.

K. E. McConnaughay
LAFAYETTE, INDIANA

PUBLICATIONS

Protective coatings—An 8-page illustrated catalog, No. C-150, entitled "Protective Coatings by Ceilcote" has been written to simplify the problem of selecting the correct protective coating system for various industrial installations. Complete data on nine different coatings are presented and the information given on each coating includes base formulation, temperature resistance, abrasion resistance, chemical properties, adhesion, method of application, surface preparation, colors, etc. In addition applications are discussed in detail and important limitations are noted. CEILCOTE CO., 4879 RIDGE RD., CLEVELAND, OHIO.

Service manual—A service manual on small engines provides repairmen with a single manual of instructions covering all leading makes of air-cooled engines. The shop guide gives specifications and step-by-step instructions for any job from minor maintenance to complete overhaul of approximately 150 different models of air-cooled engines. The 74-pager is found in a durable cover and is priced at $2.95 for a single copy. IMPLEMENT & TRACTOR PUBLICATIONS, INC., GRAPHIC ARTS BLDG., KANSAS CITY 5, MO.

Pressure filters—Bulletin No. 2225B describes the Permutit line of pressure filters and their accessories. Specifications, operating characteristics, outline dimensions and typical installation photographs have been included in this edition. THE PERMUTIT CO., 330 W. 42ND ST., NEW YORK 36, N. Y.

Motor grader—The Adams motor grader No. 550 is described in a new catalog that covers the construction of the machine, its operating advantages and shows the machine's application to a wide variety of work. ADAMS DIV., LETOURNEAU-WESTINGHOUSE CO., INDIANAPOLIS, IND.

Power unit—A 6-page brochure describes the new Power Giant power unit offered by the company. Specifications of engines, standard equipment and housing are given. Includes horsepower, torque and fuel consumption figures of 4- and 6-cylinder engines. Bulletin X-162. INDUSTRIAL ENGINE DEPT., WILLYS MOTORS, INC., 1115 N. COVE BLVD., TOLEDO, OHIO.

Electric shovel—A new P&H electric shovel is introduced in an 8-page, two-color bulletin. The machine identified as **P&H** model 1055-E is similar in size to the standard 3½-yd model 1055 but is completely electric driven by constant speed ac motors throughout. HARNISCHFEGER CORP., LARGE EXCAVATOR DIV., 4611 W. NATIONAL AVE., MILWAUKEE 46, WIS.

Instruments—A new folder on engineers' and surveyors' transits, levels and planimeters has been published. The folder gives full details and prices on the company's line of imported instruments. UMECO OPTICAL DIV., 465 CALIFORNIA ST., SAN FRANCISCO 4, CALIF.

Vault door—An 18-page illustrated brochure describes a new 10-in. vault door. Published for bankers, bank architects and builders, the brochure presents the story of the new door's development and explains its features. Open and closed views of 12 standard installations are shown. Publication SL-0002-051. DIEBOLD, INC., CANTON 2, OHIO.

Company brochure—The diversified manufacturing activities of the Blaw-Knox Co. are shown in a recently published 50-page informational brochure entitled "This Is Blaw-Knox". It contains illustrated material on all major departmental operations in the company's eleven divisions. Chief emphasis is placed upon products and services and their industrial applications. Other features include the location and manufacturing facilities of company plants and a complete listing of available catalogs. BLAW-KNOX CO., FARMERS BANK BLDG., PITTSBURGH 30, PA.

Self-priming pumps—A new bulletin on self-priming centrifugal pumps explains graphically the specifications, applications and sizes of various types. The bulletin presents information on component parts, characteristics, ranges of application and a comprehensive chart of the pump models listing their dimensions in inches. Bulletin No. W-395-B2. SALES PROMOTION DEPT., WORTHINGTON CORP., HARRISON, N. J.

Cutting and welding—A 20-page product catalog describes in detail the line of cutting torches, cutting tips, welding torches and attachments, welding tips, heating tips, mixers, extension tubes, adapters and regulators available from THE K-G EQUIPMENT CO., INC., 1744 LEHIGH ST., ALLENTOWN, PA.

Yoloy reduces body weight, increases payload

THE YOLOY FAMILY

High in resistance to corrosion, shock and vibration, easy to fabricate, easy to weld.

YOLOY
(Nickel-Copper)
Low Alloy High Strength Steel

YOLOY E
(Nickel-Chrome-Copper)
Low Alloy High Strength Steel

YOLOY C
(Chrome-Copper)
Corrosion Resistant Steel

Above: Trucks with Perfection Special Contractors' Type Body —all fabricated from Yoloy Steel.

YOLOY IS AVAILABLE in sheets, plates, strip, pipe, mechanical tubing, bars, shapes and cold finished bars.

Here's another fabricator who finds it profitable to use Youngstown's low-alloy high-strength steel. The Perfection Steel Body Co., Galion, Ohio, summarizes its experience with Yoloy Steel as follows:

"The physical properties of Yoloy are such that lighter gauges used in the construction of dump bodies result in considerable weight reduction and thereby provide increased payloads. Yoloy's corrosion resisting qualities provide the additional advantage of lending longer life to the equipment".

Youngstown

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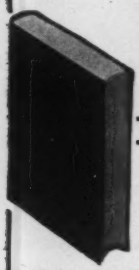

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Gives you a vast compilation of data and methods for the most effective uses of piping . . . principles that influence the design, construction, and use of piping systems. Covers steam power-plant piping, building heating systems, plumbing systems, refrigeration piping, hydraulic power transmission piping, refinery piping, etc. Revised Fourth Edition features data on formulas for pipe wall thicknesses, gas and air piping, and allowable stresses. **By S. Crocker, Mech. Eng'r., Ebasco Services, Inc. Revised Fourth Edition, 1376 pages, 763 illus., $10.00**

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INTERNATIONAL

Volcanic Power

Steam from underground to be used "down under"

New Zealand is preparing to generate electricity using natural steam from subterranean volcanic activity.

C. W. O. Turner, engineer-in-chief of the New Zealand Ministry of Works, told of his plans during a visit to the Bureau of Reclamation engineering headquarters in Denver. Turner said the Ministry of Works expected to have 40,000 kw of capacity from the natural steam by the end of the next three years.

Turner said the idea is not entirely new: in Italy natural steam is used for producing power near Florence; but New Zealand's circumstances are a little different.

"The natural steam," Turner said, "is along a trough called a graben—a German word for grave—which extends from the sea about 80 miles to the mountains. The steam even shows itself on the ground surface. We've test drilled three sites, one of them extensively.

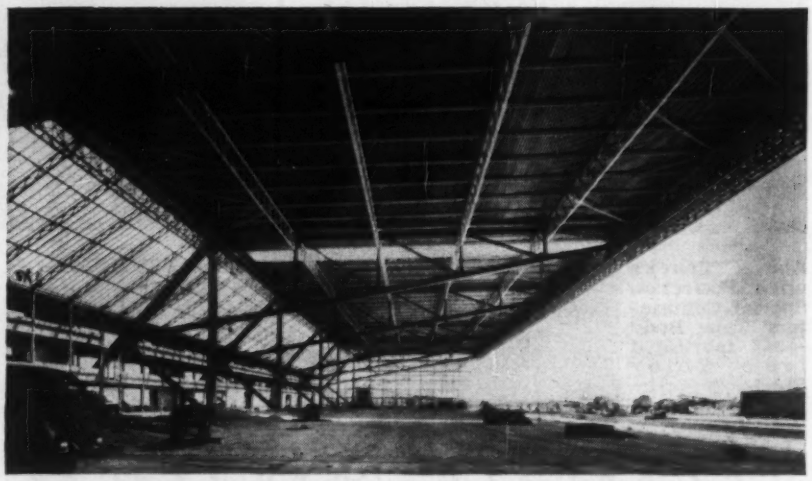
"At this site we've found pressure of 70 psi at a depth of 500 feet. At this pressure and shallow depth, one 4-in. pipe will provide steam for 1,000 kw of capacity. The pressure at 2,000 ft is 150 to 200 psi and an 8-in. pipe will supply 8,000 kw of capacity."

Turner said that New Zealand is in urgent need of new power generating facilities.

His ministry, serving a group of islands having a land area about the same as that of Colorado, is spending about $200 million this year on public works. Included in that is $60 million for hydro-power. Six hydro projects are under construction, ranging from 60,000 kw to 320,000 kw, for a population of slightly more than 2,000,000 persons.

International Briefs . . .

• **Plans wanted**—An international competition for preparation of plans for the development of Ankara, Turkey, is open to architects and engineers throughout the world. The competition—with a March 10 deadline—is being held to find the best means of



New Long-Span Hangars at Paris Airport

Two maintenance hangars under construction at the Orly Airport near Paris, France, have clear openings of 710 ft and 503 ft, respectively. Both of them are constructed with steel cantilever roofs and have serviceable depths of 147 ft and heights of 50 ft.

The first hangar has eight cantilever trusses, with an overhang of 124 ft. These are placed at alternate distances of 100 and 75 ft and linked by longitudinal girders 5 ft high placed at 24-ft centers.

Daylight is provided through a continuous skylight sloping to an angle of about 45°, 36 ft in width, running along the whole north side of the hangar. The lower edge of the skylight rests on the inner edge of the three-story building of offices, stores and workshops, adjoining the hangar.

The larger hangar can be closed by eight doors, 89 ft wide each, moving on 4 tracks of parallel rails.

The layout of the hangar was designed by the Paris Airport. Contractor is the Societe Foures, and design engineers were the Societe E.C.L.

modernizing the present development plan. Full details may be obtained from the Turkish Embassy in Washington, D. C.

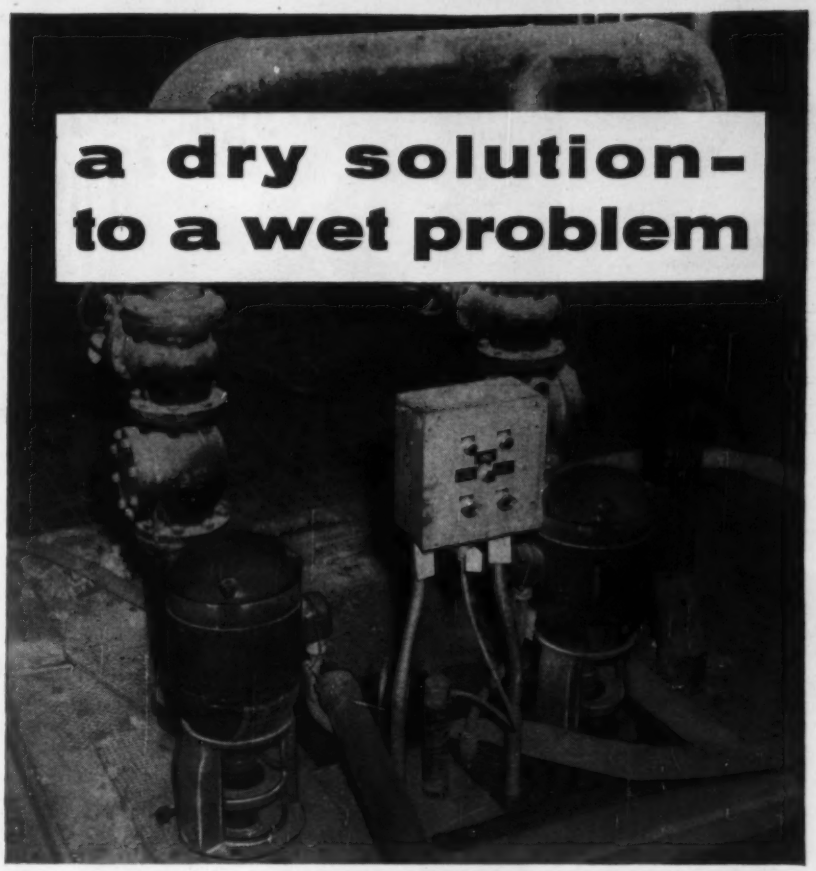
• **Suez Canal scheme**—Plans to widen and deepen the Suez Canal have been approved by the International Advisory Works Commission of the Suez Canal Co., Paris, and work is expected to begin early this year. The proposed scheme includes cutting two by-passes, one at Port Said, the other in Great Bitter Lake.

• **Engineers' laboratory**—A new $500,000 laboratory-office is under construction two miles west of Niagara Falls, Ont., for the Canadian consulting engineering firm of H. G. Acres & Co. The two-story building—reportedly the first to be erected especially for consulting engineers in Canada—will house a staff of 400.

• **High hydro site**—Basutoland, South Africa, is making a final survey on a proposed $28-million dam and hydroelectric project to be built across a narrow gorge through which the Orange River runs, 8,000 ft above sea level. The scheme will create a reservoir more than 90 mi long with natural sides formed by cliffs—and will provide an African source of power second only to the Rhodesian Kariba Gorge project.

• **Copper project financing**—The Export-Import Bank is considering a $100-million loan to Southern Peru Copper Corp. (subsidiary of American Smelting & Refining Co.) to help finance the $305-million development of the Toquepala copper project in southern Peru. Toquepala mine—one of the 10 largest copper deposits in the world—is located about 56 mi inland from Port of Ilo and is expected to produce 30,000 tons of ore a day. Other parts of the project: construction of a town for mill employees; some 100 mi of railroad to the coast; a smelter and electric power generating facilities on the coast; port facilities; roads; water supply systems; a town for smelter, power plant and port employees.

• **First power phase**—The first stage of construction on Venezuela's multimillion dollar Caroni River power project in the state of Bolivar will begin this month and be completed in October. Some $5.7 million will be spent on this phase. (For background, ENR Nov. 12, 1953, p. 63.)



A large-volume user of water had a "wet plant problem." The solution is pictured above. Here you see two Deming Vertical Sump Pumps each with a 10 HP motor. Each pump has a rated capacity of 500 GPM with a 50-foot head. Unwanted water from all areas of the plant drains into a pit. When water in the pit rises to a predetermined level, one of the Deming Sump Pumps goes into action automatically. Or, if required, both pumps can be used simultaneously. If you have a "wet plant problem" there's a Deming Distributor near you to help you solve it.

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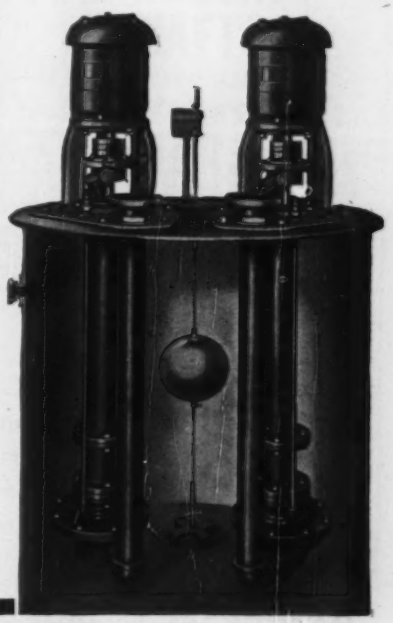
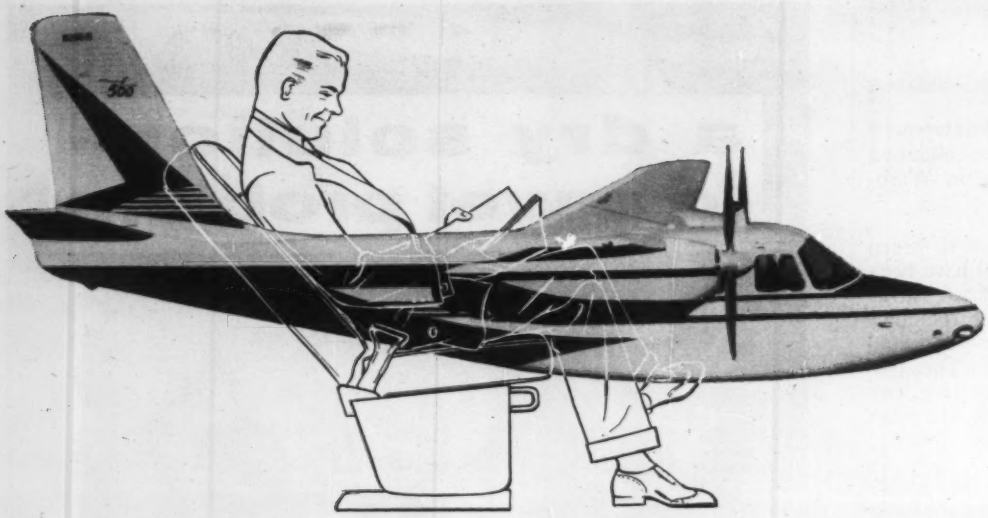
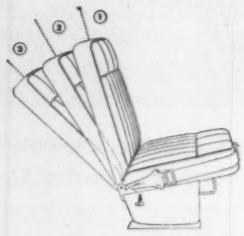




SEATING COMFORT *IN THE NEW AERO COMMANDER 560*



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OBITUARIES

Robert J. Middleton, 73, former chief engineer of the Chicago, Milwaukee, St. Paul & Pacific Railroad, died Dec. 21 in Seattle. A civil engineering graduate of the University of Arkansas, he joined the railroad's engineering staff in 1906. Before his Chicago assignment as chief engineer he was in charge of the Seattle engineering office for the railroad.

Frank L. Raschig, 76, retired Ohio state director of public works, died Dec. 27 in Cincinnati. For 22 years he was assistant bridge engineer at Cincinnati and later served as assistant and chief engineer of the Ohio Highway Department.

Isaac L. Stinebaugh, 91, former engineer for Wood County, Ohio, died Dec. 11 at Bowling Green.

Rufus L. Crawley, 75, city engineer at Salisbury, N. C. from 1910 until his retirement in 1952, died Dec. 14.

Edward W. Schmidt, retired chief engineer for the Bethlehem Steel Co. at Lackawanna, N. Y., died in Buffalo Dec. 13.

John W. Landel, 86, a road contractor for over 20 years, died at his home in North Tonawanda, N. Y., Dec. 10.

Duncan W. Fraser, 79, who retired as board chairman of the American Locomotive Co. early this year after 56 years of service, died Dec. 20 in New York City.

William H. Barton, 68, retired civil engineer who had been with the New York Central Railroad for nearly 40 years, died at White Plains, N. Y., Dec. 18.

C. Joseph Gooch, 66, engineering and construction consultant of the New England Electric System died at Brookline, Mass., Dec. 19.

William H. Supplee, 80, Erie County, Pa., engineer from 1929 to 1948, died Dec. 6 in Bradenton, Fla.

Thomas J. Hume, 68, president of the T. J. Hume Co., Lorian, Ohio, general contractor, died Dec. 8.

John I. Merritt, 72, former treasurer of Merritt-Chapman & Scott Corp., died Dec. 13 in Daytona Beach, Fla.

Fred Senese, building contractor of Wilkes-Barre, Pa., died Dec. 6.

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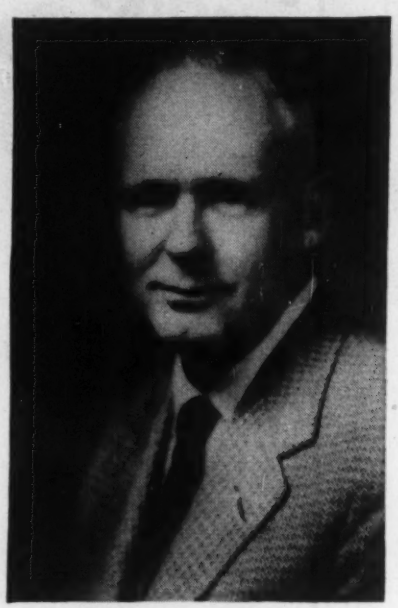
MEN AND JOBS



General Twitty Joins Palmer & Baker Firm

Brig. Gen. Joseph J. Twitty, recently retired from the Corps of Engineers, has joined the Mobile, Ala., consulting engineering firm of Palmer & Baker, Inc. He will be chief resident engineer on the new $46-million causeway across Lake Pontchartrain near New Orleans.

Although his last military assignment was as chief of staff of the Fifth Army, General Twitty's career has been identified with the Army Engineers from the time he graduated from West Point in 1918. He had previously graduated from Georgia Tech.

In the field of civil works, General Twitty served as assistant to the president of the Mississippi River Commission, assistant district engineer at Kansas City, and district engineer at Mobile. A Japanese language expert, he directed the psychological warfare campaign against Japan during World War II from headquarters in Hawaii. During the Korean War, he was in command of the Second Engineer Special Brigade, which landed at Inchon and operated and restored that port.

As resident engineer at New Orleans, General Twitty will work under Rear Admiral Lewis Moeller, (C.E.C. USN, Ret.) who joined Palmer & Baker in 1953.

Change in Top Command At Lockwood Greene

Lockwood Greene Engineers, Inc. of Boston, New York and Spartanburg, S. C., has elected William J. Heiser as president and treasurer, and H. Morgan Rogers, Jr., as vice president. Samuel B. Lincoln, formerly president, becomes chairman of the board.

Heiser has been with the company since 1926. Prior to his election as president, he held the posts of executive vice president and chief engineer.

Baldwin-Lima-Hamilton Shifts Executive Staff

McClure Kelley, of Wayne, Ill., has been appointed executive vice president of Baldwin-Lima-Hamilton Corporation, New York City.

His appointment is one of several that mark the first step in the company's 1955 program of further expansion and diversification.

Since 1942, Kelley has been president of Austin-Western Co., a B-L-H subsidiary in Aurora, Ill. He is a director of the company and has also been serving as general manager of the company's construction machinery division.

Men and Jobs Briefs . . .

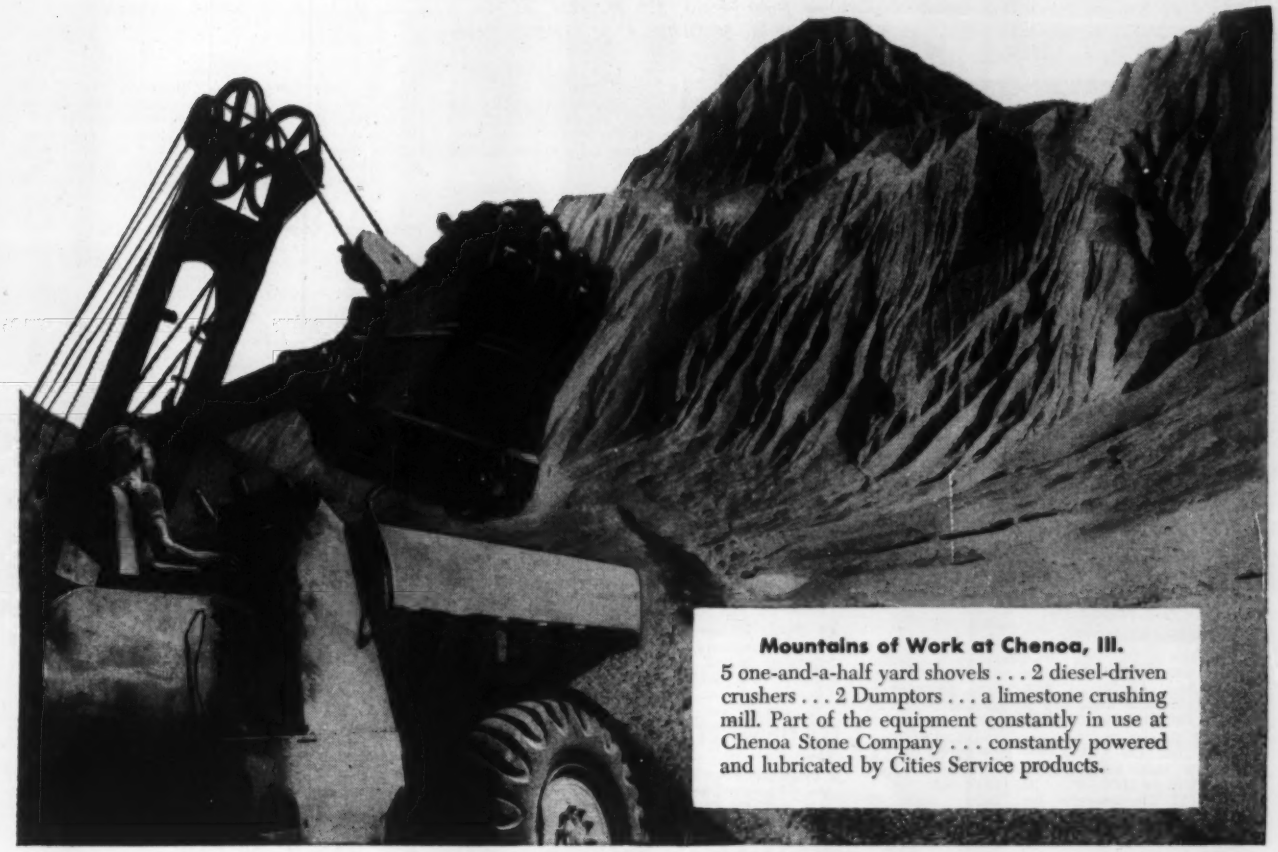
• **Corps of Engineers**—A Pentagon shift moves **Brig. Gen. W. A. Carter, Jr.**, from director of installations, Office of Deputy Chief of Staff for Logistics, to engineer, Army Forces, Far East. He'll be replaced by **Col. Keith R. Barney**, now Kansas City district engineer, and Barney's job will go to **Col. Ernest C. Adams** . . . **Col. Paul D. Berrigan's** orders to the Far East (ENR, Dec. 9, p. 51) have been rescinded and he's staying on in San Francisco pending assignment to another post.

• **Careers**—Kentucky's highway commissioner, **William P. Curlin**, has joined Kentucky Concrete Pipe Co.—his successor is **Mitchell W. Tinder** who's been with the department 24 years . . . **Joseph R. Kirby** is appointed bridge engineer for North Dakota's highway department . . . **Jacques Archambault** becomes assistant system planning engineer of the Quebec Hydro-Electric Commission.

• **Honors**—**Richard L. Hearn** of Toronto, chief engineer of Ontario Hydro, is the 1954 recipient of the Julian C. Smith medal—awarded by the Engineering Institute of Canada "for achievement in the development of Canada". New York City BTEA board chairman **Peter W. Eller** is elected a director of Union Labor Life Insurance Co.

Cities Service C-300 cuts make-up oil 600%!

Stone cold facts from the
Chenoa Stone Company, Chenoa, Illinois



Mountains of Work at Chenoa, Ill.
5 one-and-a-half yard shovels . . . 2 diesel-driven crushers . . . 2 Dumptors . . . a limestone crushing mill. Part of the equipment constantly in use at Chenoa Stone Company . . . constantly powered and lubricated by Cities Service products.

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"C-300's detergent action completely eliminated a bothersome sludge problem. On our first three oil changes with it, we removed 5 gallons of sludge from each of our 200 horsepower diesels. Since then, these diesels have remained clean, and today, when we open the crankcase, we can even see the paint.

"We also are using far less oil between changes. In fact Cities Service C-300 actually cut make-up oil from 5 to 6 gallons every 150 hours to less than one gallon every 150 hours!

"In addition to C-300 oil, we use Cities Service Lubricants for every requirement... Diesel Fuel, Gasolenes, Trojan M Grease and hydraulic fluid. We have been completely satisfied with every product.

"Cities Service has given us top-notch service, the best we've ever had. We are better supplied than ever and have learned to rely on Cities Service dependability."

There is nothing Cities Service could possibly add to Mr. Vickrey's statement, except a reminder to contact your local Cities Service representative in order that you may enjoy similar results in *your* operation. Or write: Cities Service Oil Company, Sixty Wall Tower, New York 5, N. Y.

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. O. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

▲ **MASSACHUSETTS**—BA 1/20—Massachusetts Turnpike Auth., 80 Boylston St., Boston,
Grafton-Upton-Westborough and Hopkinton—Contr. 51-080 hy. and bridge constr. $3,000,000. Plans deposit $40. Howard, Needles, Tammen & Bergendoff, 80 Boylston St., Boston, engrs. CD 8/11.

▲ **MASSACHUSETTS**—BA 1/27—Massachusetts Turnpike Auth., 80 Boylston St., Boston,
Framingham—Contr. 51-091 hy. and bridge constr. $3,000,000. Plans deposit $100. Howard, Needles, Tammen & Bergendoff, 80 Boylston St., Boston, engrs. CD 8/11.

▲ **MASSACHUSETTS**—BA 2/1—Massachusetts Turnpike Auth., 80 Boylston St., Boston,
Sturbridge and Charlton—Contr. 51-071 hy. and bridge constr. $2,500,000. Plans deposit $50. Howard, Needles, Tammen & Bergendoff, 80 Boylston St., Boston, engrs. CD 8/11.

BIDS ASKED—BUILDINGS

▲ **Conn., Manchester**—HIGH SCHOOL—BA 2/13—Town Bd. Educ., Municipal Bldg., high school. $4,000,000. CD 6/17/52.

▲ **R. I., Newport**—HIGH SCHOOL—BA 2/2—City, Supt. Schools, City Hall, Rogers High School, off Ruggles Ave. $2,200,000. Plans deposit $100. Kelly & Gruzen and William Davies Assoc., 73 Tremont St., Boston, Mass., archts. CD 11/23, under LB.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **S. Volpe & Co., Inc.**, 185 Devonshire St., Boston, Mass., CA **$1,379,000**, aircraft maintenance hangar, U. S. Naval Air Station, NOY 79821, BRUNSWICK, ME. First Naval Dist., 495 Summer St., Boston 10, Mass. Bids Oct. 26. CD 10/29, under LB.

▲† **J. W. Bateson Co., Inc.**, 400 Gibralter Life Bldg., Dallas, Tex. CA **$3,337,350**, est. $5,000,000-$5,500,000. multi purpose hangars, Loring Air Force Base, ENG-19-016-55-41, LIMESTONE, ME. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. CD 12/14, under LB.

▲ **NEW HAMPSHIRE**—State Dpt. P. Wks. & Hys., Concord,
W. H. Hinman, Inc., North Anson, Maine, CA **$1,071,179**, road mix and blt. macad. pavement and bridge 2.197 mi. Spaulding Turnpike (Toll), Dover. Bids Dec. 13, awarded Dec. 30. CD 12/17, under LB.

▲ **MASSACHUSETTS**—Massachusetts Turnpike Auth., 80 Boylston St., Boston,
L. G. DeFelice & Son, Inc., Nettleton Ave., North Haven, Conn., LB **$3,487,230**, Contr. No. 51-050, highway and bridge constr. at Warren, Brimfield and Sturbridge. Bids Dec. 28. CD 12/7.

▲† **Bethlehem Steel Co.**, Fore River Shipyard, Quincy, Mass., CA Total est. **$5,000,000-$10,000,000**. Texas Tower for use at sea, MASSACHUSETTS. Dist. P. Wks. Office First Naval Dist., 495 Summer St., Boston 10, Mass. CD 12/23.

CONNECTICUT—State Hy. Comn., State Office Bldg., Hartford,
Paul Bacco & Son, Inc., 758 Summer St., Stamford, Conn., CA, **$777,198**, Proj. 306-01, four single span rolled beam bridges at Five Mile River, Richards Ave., Keeler Ave. and West Ave. on Greenwich-Killingly Expressway, Norwalk. Bids Dec. 6, awarded Dec. 27. CD 12/14, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Brooklawn Constr. Co.**, 254 Prospect Ave., Hartford, Conn., CA. Approx. **$2,000,000**. OFFICE, Woodland and Asylum Sts., HARTFORD, CONN. John E. Hayes Realty Co., 526 Framington Ave., Hartford, Conn. CD 1/3.

MIDDLE ATLANTIC

SOON LETS CONTRACT—BUILDINGS

N. J., Somerville—HOSPITAL—Crow, Lewis & Wick, archts., 200 Fifth Ave., New York 10, N. Y., soon lets contract 3 story hospital addn., for Somerset Hospital, $800,000.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Caye Constr. Co.**, 356 Fulton St., Brooklyn 1, N. Y. CA **$3,552,733**, structures and equipment for constr. Oakwood-Beach Pollution Control Proj., Richmond Boro, NEW YORK, Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. Bids Nov. 17. CD 11/19, under LB.

▲ **NEW JERSEY**—N. J. Turnpike Auth., Administration Bldg., New Brunswick,
Klevens Corp., 3 Federal St., Yonkers, N. Y., LB, **$1,263,360**, Contract N-15, substructures for 5 bridge structures between Linden Ave. and CRR of N. J. crossing at Phillip St. on Newark Bay-Hudson County extension on N. J. Turnpike, Jersey City, Hudson Co. Bids Dec. 30. CD 12/2.

▲ **NEW JERSEY**—N. J. Turnpike Auth., Administration Bldg., New Brunswick,
American Bridge Co., 25 Broadway, New York, N. Y., LB, **$1,169,430**, Contract N 27-A, fabrication, erection of superstructure steelwork for portion North Terminal ramps at Tenth St. in connection with Newark Bay-Hudson Co. Extension of N. J. Turnpike, Hudson Co. Bids Dec. 20. CD 12/9.

▲ **NEW JERSEY**—State Hy. Dpt., State Hy. Office Bldg., 1035 Parkway Ave., Trenton,
J. F. Chapman & Son, Inc., 612 Glenwood Ave., Hillside, N. J., LB, **$1,822,804**, grading, bridges, paving 1.581 mi. Route 29 extension (East-West Freeway) Trenton, Mercer Co. Bids Dec. 30. CD 12/13.

▲ **MARYLAND**—State Roads Comn., 108 E. Lexington St., Baltimore 2,
Wilmoth Paving Co., 1st and F St. S.E., Wash. 3, D. C. CA **$1,978,050**, Contr. P-736-2-320, grading, drainage, surf. 3.193 mi. New Hampshire Ave. D. C. line to Montgomery Co. line, Prince George Co. Bids Nov. 23. CD 11/30, under LB.

MARYLAND—State Roads Comn., 108 E. Lexington St., Baltimore, Zone 2,
W. E. Graham Constr. Co., Cleveland, N. C., CA **$712,383**, Contr. W-445-1-620, grading, drainage, wid'n., relocation and surf. 3.137 mi. Leitersburg By-Pass, Washington Co. Bids Nov. 16. CD 11/23, under LB.

▲† **Cramer Vollmerhausen Co., Inc.**, 1919 Kenilworth Ave., Bladensburg, Md., CA **$3,919,759**, Dalecarlia Pumping Station, 5900 Mac Arthur Blvd., CIVENG-49-080-55-3, WASH., D. C. U. S. Eng., First and Douglas Sts., N. W., Wash. 25, D. C. Bids Nov. 30, awarded Dec. 31. CD 12/2, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Oyster Bay Pines**, c/o E. J. Cappello, archt., 45 Middle Neck Rd., Great Neck, N. Y. Owner Builds. $3,000,000. 200 HOUSES, 47-acre tract, Berry Hill Rd., off South Oyster Bay Rd., OYSTER BAY, N. Y.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	Middle West
Middle Atlantic	West of Mississippi
South	Far West

PROPOSED WORK

Water Supply	Public Buildings
Sewers, Waste Disposal	Mass Housing
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.
CD dates shown are of Construction Daily issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
ENR Engineering News-Record
CD Construction Daily
For additional reports see Construction Daily.

John W. Rouse Constr. Corp., Gouverneur, N. Y., LB **$767,767**, general constr. MUSIC BLDG., State University Teachers College, POTSDAM, N. Y. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Dec. 28. CD 11/30.
▲ **Winthrop Greens Homes**, c/o Henry A. Klar Realty Co., 220-02 Horace Harding Blvd., Bayside, N. Y. Owner Builds. $3,500,000. 300 HOUSES, tract on north side Montauk Hy., SAYVILLE, N. Y.
Hunter Brook Gardens, c/o Brown-Solomon & Co., 1006 Broad St., Peekskill, N. Y. Owner Builds. **$900,000**. 60 HOUSES, Hunter Brook Rd. and Old Crompond Rd., YORKTOWN, N. Y.
Just Constr. Corp., c/o John Burton & Assoc., archts., 163-18 Jamaica Ave., Jamaica, N. Y. Owner Builds. **$634,500**, 47 HOUSES, tract bounded by 59 Ave., 262 St., 60 Ave. and 264 St., LITTLE NECK, N. J.
▲ **Barlow-Meagher Co., Inc.**, 101 Park Ave., New York 17, N. Y., CA **$1,300,000**. DENATURING PLANT, 288 Doremus Ave., NEWARK, N. J. National Distillers Products Corp., 1060 Broad St., Newark, N. J.

SOUTH

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **WEST VIRGINIA**—State Rd. Comn., 1800 Washington St. E., Charleston,
John P. Beasley Constr. Co., 20 N. Wacker Dr., Chicago, Ill. CA **$1,066,000**. Bridge 1899, steel superstructure over Kanawha River and New York Central R.R. and ramp approaches, F.A. Proj. F 283 (9), Fayette and Kanawha Counties. Bids Dec. 14, awarded Dec. 17. CD 12/28, under LB.

Boyle Constr. Co., Drawer 471, Sumter, S. C., LB **$758,277**, water and sewer imprvs., CLINTON, N. C. City, Mayor A. P. Winfree, Clinton, N. C. Bids Dec. 22. CD 12/16.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **T. A. Loving & Co.**, Bank of Wayne Bldg., Goldsboro, N. C., LB **$1,198,900**, four DORMITORIES, two dormitories 110,416 cu. ft. each; other two dormitories 568,770 cu. ft. each, at Hospital, GOLDSBORO, N. C. State Hospital Bd. Control, Capitol Bldg., Raleigh, N. C. Bids Dec. 21. CD 11/26.
▲ **The Lummus Co.**, 385 Madison Ave., New York 17, N. Y. CA Approx. **$3,000,000**. vinyl acetate monomer PLANT, adjacent to existing plants, CALVERT CITY, KY. Air Reduction Co., 60 E. 42 St., New York 17, N. Y., awarded Dec. 27.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Mich., Holland**—BA 1/24—City, Clarence Grovengood, clk., water sys., Contr. 1, lake intake line 42 in. rein-con. or steel pipe, Contr. 2, 25,600 ft. 36 in. transmission line, 3,900 ft. 30 in. river crossing aerial steel pipe, over Black River, $1,100,000. Plans deposit $15 refundable. Black & Veatch, 4706 Broadway, Kansas City 12, Mo., engrs. CD 7/12.

SOON LETS CONTRACT—BUILDINGS

Ind., Valparaiso—DORMITORY—Valparaiso University, 651 College Ave., soon lets contract 3 and 4 story mens dormitory. $900,000. Hare & Hatch, 125 Broad St., New York, N. Y. archts. CD 11/12.

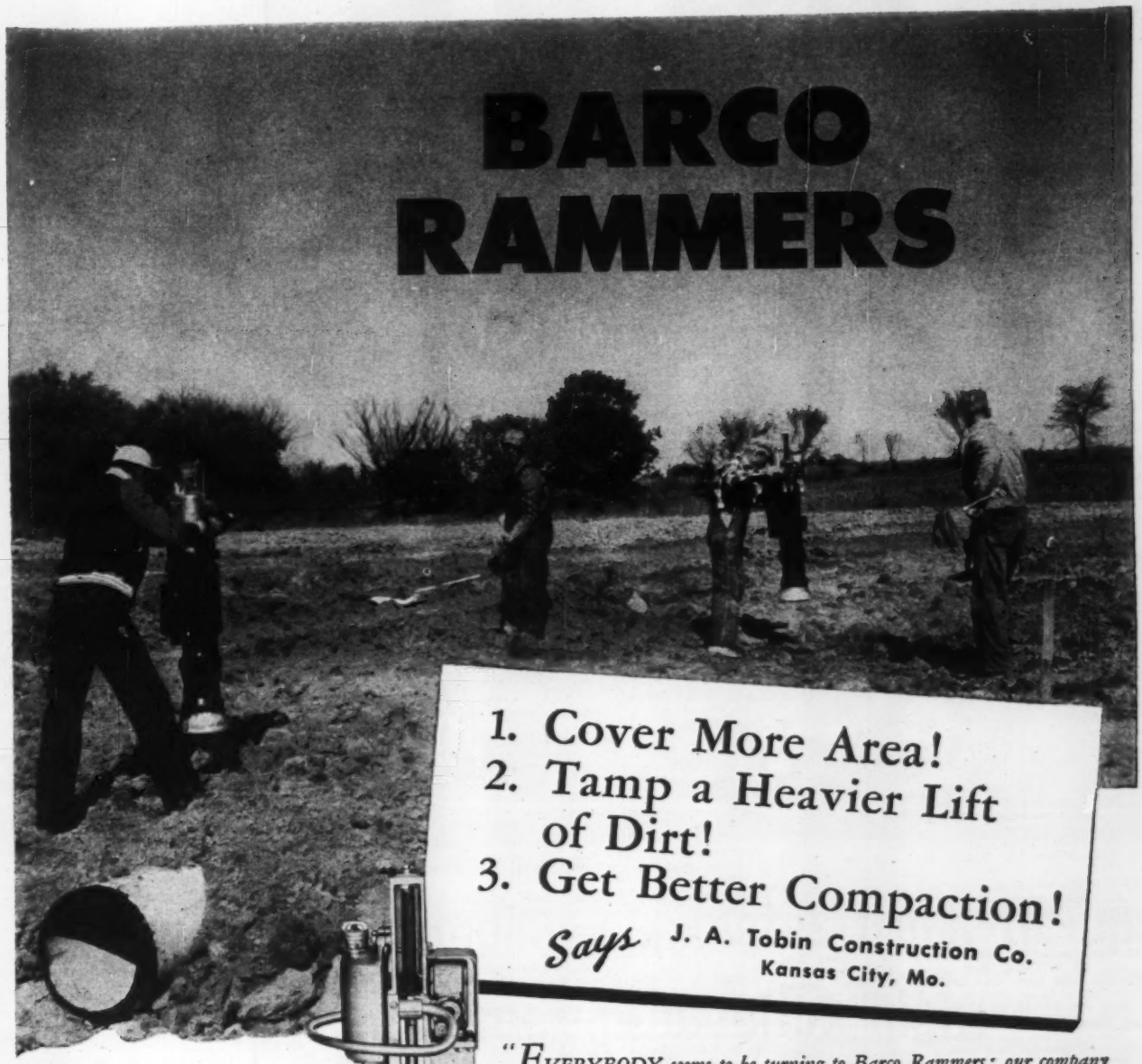
HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **OHIO**—Ohio Turnpike Comn., 139 E. Gay St., Columbus,
Beacon Constr. Co., 102 Hano St., Boston, Mass., LB **$1,050,000**, two gas station and restaurant bldgs. Williams Co.; LB **$1,090,000**, two gas station and restaurant bldgs., Lucas Co.;
Campbell Constr. Co., Warren, O., LB **$929,735**, two gas station and restaurant bldgs., Portage Co.; LB **$919,731**, two gas station and restaurant bldgs., Mahoning Co.;
W. B. Gibson Co., 200 Chestnut Ave., N. E., Warren, O. LB **$1,002,743**, two gas station and restaurant bldgs., Cuyohoga Co.;
T. J. Hulme Co., Lorain, O., LB **$961,000**, two gas station and restaurant bldgs., Sandusky Co.;
Mosser Constr. Co., Fremont, O., LB **$979,000**, two gas station and restaurant bldgs., Lorain Co.;
Steinle-Wolfe, Inc., 128 N. Jefferson St., Fremont, O. LB **$959,000**, two gas station and restaurant bldgs., Sandusky Co., all foregoing along Ohio Turnpike. CD 3/22.
† **Darin & Armstrong, Inc.**, 2041 Fenkell Ave., Detroit, Mich., CA **$629,944**. type 2 hangar, Michigan National Guard, Detroit-Wayne Major Airport, ENG-20-965-55-1, DETROIT, MICH. Property & Fiscal Officer, 3111 W. St. Joseph St., Lansing 1, Mich. Bids Dec. 7, awarded Jan. 5. CD 11/13.

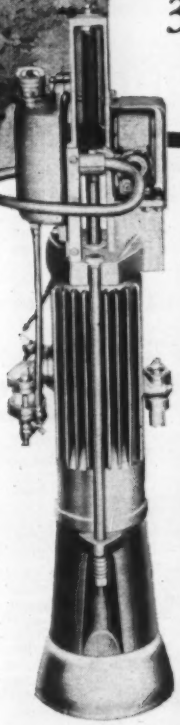
(Continued on page 68)

BARCO RAMMERS



1. Cover More Area!
2. Tamp a Heavier Lift of Dirt!
3. Get Better Compaction!

Says J. A. Tobin Construction Co.
Kansas City, Mo.



- SELF-CONTAINED
- PORTABLE
- ONE MAN OPERATION
- FASTER COMPACTION
- BETTER COMPACTION
- LOWER INITIAL COST
- LOW OPERATING COST
- EASY TO USE, SAFE!

"EVERYBODY seems to be turning to Barco Rammers; our company certainly is," states George Pennington, Warehouse Foreman, of J. A. Tobin Construction Co., Kansas City, Mo. *"The Barco machines cover more area, tamp a heavier lift of dirt, and get better compaction . . . Never heard a complaint on their operation in three years . . . They really do the work!"*

Two of the Tobin Company's Rammers are shown in the above picture working on a fill over a culvert on Highway 69 near Kansas City. Other compaction being handled is around water mains and near ends of bridges. One of the most important advantages offered by Barco Rammers is helping contractors get jobs finished on time. YOU CAN GET IMMEDIATE DELIVERY ON BARCO RAMMERS NOW — CALL OUR NEAREST DISTRIBUTOR TODAY OR WRITE.

For Soil Compaction Close to Walls, Culverts and Abutments — in Trenches, Ditches

BARCO *Manufacturing Co.*

514B Hough St., Barrington, Illinois

(Continued from page 66)

BUILDINGS

LOW BIDS AND CONTRACTS

Knowlton Constr. Co., 106 N. Main St., Bellefontaine, O., CA $618,600, 4 story brick, rein.-con. DORMITORY No. 10, ATHENS, O. Ohio University, Athens, O. Bids Nov. 5. CD 11/17.

▲ **Ford Motor Co.,** 3000 Schaefer St., Dearborn, Mich. 3 story, 450,000 sq. ft. OFFICE, Southfield and Rotunda Sts., DEARBORN, MICH. (Correction-Status). Contract not awarded. CD 11/22, under CA.

▲ **Mar-Moor Estates,** 601 E. Ottawa St., Lansing, Mich. Owner Builds. $2,500,000. RESIDENTIAL DEVELOPMENT, 225 HOMES, Waverly and Willow Rds., Delta Twp., Eaton Co., LANSING, MICH.

▲ **Green & Klein, Inc.,** 1807 James Couzens St., Detroit, Mich. Owner Builds. $4,000,000. 400 HOUSES, 112 acre development, LANSING, MICH.

▲ **Mitchell Realty Co.,** James L. Mitchell, pres., 801 Edgemont St., Lansing, Mich. Owner Builds. $4,000,000. 375 HOUSES, Delta Twp., Eaton Co., LANSING, MICH.

▲ **Weinstein Constr. Co., Inc.,** 573 E. Talmadge St., Akron, O. LB $2,113,300. general contract;

Distel Heating Electric, Inc., 720 E. Shiawassee St., Lansing, Mich. LB $740,000. mechanical contract for high SCHOOL, MIDLAND, MICH. City, Bd. Educ., Midland, Mich. Bids Dec. 21. CD 12/14.

Consolidated Constr. Co., Bay City, Mich. CA $592,108. Ricker Junior High SCHOOL, Weber and Outer Drive, SAGINAW, MICH. City, Buena Vista Twp. School Dist. 1, Saginaw, Mich. Bids Dec. 1. CD 11/22, under Mich., Buena Vista.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

▲† **Tex., Kelly Air Force Base**—RUNWAY, etc.—BA 2/9—U. S. Eng., P.O. Box 1229, Galveston, runway, taxiways, aprons, runway lighting, Inv. No. ENG-41-243-55-33. $12,000,000. CD 12/30, under LB.

BIDS ASKED—BUILDINGS

Tex., Houston—WAREHOUSE—Bids Asked—Damon Wells, 2107 McKinney St., warehouse. $800,000. Josh Tillinghast, 3207 Montrose Blvd., archt. CD 12/29.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MINNESOTA—State Hy. Dpt., 1246 University Ave., St. Paul,

St. Paul Dredging Co., 1397 Laurel Ave., St. Paul, CA $813,992, grav. base, bit. stabil. base and bridge 6.1 mi. between Biwablk and Aurora, St. Loyis Co. Bids Oct. 15. CD 10/20, under LB.

† **Fred R. Comb Co.,** 2901 Aldrich Ave. S., Minneapolis 8, Minn., CA $569,051, post exchange, recreation bldg., maintenance hangar, Duluth Air Force Base, Inv. 25-066-55-36, DULUTH, MINN. U. S. Eng., 1709 Jackson St., Omaha, Neg. Bids Dec. 15. CD 12/22.

Orfei & Mariani, 1156 Homer St., St. Paul, Minn., CA $679,462, constr. northwest diagonal trunk sewer, EDINA (P.O. MINNEAPOLIS), MINN. Village, E. C. Bank, clk., Edina, Minn. Bids Dec. 13. CD 12/20, under LB.

Clarkson Constr. Co., 4133 Gardner Ave., Kansas City, Mo. LB $815,812. dam, spillway, lake bed clearance Little Blue River, near KANSAS CITY, MO. Jackson Co., Court House, 12 and Oak Sts., Kansas City, Mo. Bids Dec. 27. CD 12/22.

▲† **Farnsworth & Chambers Co., Inc.,** P. O. Box 74, Houston, Tex., CA $1,548,884, est. $1,597,654. aircraft washrack and airfield paving, incl. 260,000 sq. yd. concrete paving 14 in. thick; 2,700 sq. yd. flexible paving, 27,000 sq. yd. shoulder stabilization, Serial No. ENG-03-050-55-55, Little Rock Air Force Base, JACKSONVILLE, ARK. U. S. Eng., P. O. Box 867, Little Rock, Ark. Bids Dec. 28. CD 11/24.

▲† **George Sheaf & Co.,** 449 Neilston St., Columbus 3, O. CA $1,508,783. multi-purpose wing hangars, diesel fuel storage and area utilities Forbes Air Force Base, Inv. 23-028-55-30, TOPEKA, KAN. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. CD 12/30, under LB.

City, City Hall, 900 Brazos St., Houston, Tex. Own Forces. $800,000, street blacktopping in Trinity Gardens area, HOUSTON, TEX. Frank Baldwin, Dir. Eng. P. Wks. Utilities. CD 7/30.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Standard Constr. Co.,** 250 Builders Exchange Bldg., Minneapolis, Minn., CA Est. $1,500,000. superstructure of new 2 story, bsmnt., 100x234 ft. STORE, 7th and Cedar Sts., ST. PAUL, MINN. W. T. Grant Co., 41 E. Seventh St., St. Paul, Minn. Bids Dec. 20. CD 12/1.

C. Rallo Contg. Co., 5000 Kemper Ave., St. Louis 9, Mo., CA $701,937, inter-parish HIGH SCHOOL, JEFFERSON CITY, MO. The Archdiocese of St. Louis, Office of the Chancellor, 3810 Lindell Blvd., St. Louis 8, Mo. Bids Dec. 2, awarded Dec. 23. CD 11/4.

▲ **Swenson Constr. Co.,** 3305 Terrace St., Kansas City, Mo. CA general contract;

U. S. Engineering Co., 914 Campbell St., Kansas City, Mo. and **Carl Weiss & Co.,** 18 N. Troost St., Kansas City, Mo. CA mechanical contract;

Boese-Hilburn Electrical Co., 123 W. 8 St., Kansas City, Mo. CA electrical contract for 12 story Muehlebach HOTEL addn., KANSAS CITY, MO. Total est. $4,000,000. Trianon Hotel Co., 12 and Baltimore St., Kansas City, Mo., Neville, Sharp & Simon, 25 E. 12 St., Kansas City, Mo., archts. Pfuhl & Shideler, Finance Bldg., Kansas City, Mo., s.ruct. engrs. W. L. Cassell, 912 Baltimore St., Kansas City, Mo., engrs. CD 8/20.

Albert Fein, et al, c/o Kingsway Hotel, 108 N. Kingshighway, St. Louis 8, Mo. Owner Builds. $500,000. remodeling and modernization 275-room, 7 story, bsmnt. Kingsway Hotel, incl. refinishing exterior walls, new driveways, walks, interior remodeling, redecorating, ST. LOUIS, MO.

▲ **Jayhawk Constr. Co.,** J. C. Sargent, pres., 812 Adams St., Topeka, Kan. Owner Builds. $3,000,000. HOUSING, TOPEKA, KAN. Kiene & Bradley, 903 W. 6 St., Topeka, Kan., archts.

▲ **Dondlinger & Sons,** 1206 E. Lincoln St., Wichita, Kan. LB $1,698,736. general contract;

Ripstra-Turner Co., 1015 E. Douglas St., Wichita, Kan. LB $433,333. plumbing, heating and air-conditioning contracts for UNION CENTER BLDG., WICHITA, KAN. Union Center, Inc., Union National Bank Bldg., Wichita, Kan. Bids Dec. 20. CD 12/15.

M. Leslie Hill Enterprises, 101 Walnut Hill Dr., Dallas, Tex., Own Forces. $670,500, (A) 12 HOMES; (B) 16 dwellings, DALLAS, TEX. CD 12/3.

Roy Eastus & Assocs., 1400 Sylvan Dr., Dallas, Tex. Own Forces. $795,375, 24 all-masonry and 18 frame, masonry trim DWELLINGS, DALLAS, TEX. CD 10/27.

▲ **Bates Constr. Co.,** Irwin-Keasler Bldg., Dallas, Tex. CA $1,037,933, (D) 26 DWELLINGS (E) 12 all-masonry DWELLINGS (F) 22 masonry, cedar shake DWELLINGS, DUNCANVILLE, TEX. T. K. Irwin, Sr., Irwin-Keasler Bldg., Dallas, Tex. CD 9/21.

Joe Yarbrough, 300 Rose Lane, El Paso, Tex. Owner Builds. $636,500, 68 DWELLINGS, EL PASO, TEX. CD 12/22.

Joe C. Yarbrough, 503 Hunter Rd., El Paso, Tex., CA $656,230, 71 DWELLINGS, EL PASO, TEX. DeWitt & Rearick, 500 N. Kansas St., El Paso, Tex. CD 12/21.

Lamberth Constr. Co., 3918 Gaston St., Dallas, Tex. CA $648,150, 39 DWELLINGS, FARMERS BRANCH, TEX. E. P. Lamberth, 3918 Gaston St., Dallas, Tex. CD 12/21.

▲ **M. C. Cole Builder, Inc.,** 2635 S. Garland St., Garland, Tex., CA $1,070,225, (A) 24 DWELLINGS (B) 31 DWELLINGS (C) 35 DWELLINGS, GARLAND, TEX. M. C. Cole, 2635 S. Garland St., Garland, Tex. CD 12/15.

▲ **A. & N. Developers, Inc.,** 3929 Villanova St., Houston, Tex. Own Forces. $1,026,985, 80 DWELLINGS, near HOUSTON, TEX. CD 11/22.

Robert P. Puig, Builder, 3829 Villanova St., Houston Tex., CA $666,552, 24 brick and 20 masonry, cedar shake DWELLINGS, near HOUSTON, TEX. Memorial Bend Development Co., 3822 Villanova St., Houston, Tex. CD 11/17.

▲ **Powers Constr. Co.,** 3829 Villanova St., Houston, Tex., Owner Builds. $1,019,685, 68 DWELLINGS, near HOUSTON, TEX. CD 12/9.

McBal Constr. Co., 613 Yale St., Houston, Tex., Owner Builds $663,715, 34 DWELLINGS, near HOUSTON, TEX. CD 12/9.

Walter W. Mischer & Assocs., 6925 Navigation Blvd., Houston, Tex., Owner Builds. $804,160, Schedule No. 3, 41 DWELLINGS; Schedule No. 4, 36 DWELLINGS, HOUSTON, TEX. CD 12/16.

Gus Wright & Assocs., The Wright Investment Co., 711 N. Pearl St., Dallas, Tex., Owner Builds. $649,500, Group 1, 27 DWELLINGS; Group 2, 22 DWELLINGS, LANCASTER, TEX. CD 11/26.

Connell Constr. Co., 2110 Hawes St., Dallas, Tex. CA $676,120, 49 DWELLINGS MESQUITE, TEX. Lee Connell, National City Bldg., Dallas, Tex. CD 12/1.

B. M. Smith, Builder, 9538 Oak Creek Dr., Dallas, Tex., CA $647,269, Lot 1, 30 frame DWELLINGS; Lot 2, 25 brick DWELLINGS, MESQUITE, TEX. Northridge Development Co., c/o Urban Realty Co., Texas Bank Bldg., Dallas, Tex. CD 12/29.

▲ **Centex Constr. Co.,** 4911 Greenville St., Dallas, Tex. Separate Contracts. $3,150,000. luxurious APARTMENT UNITS, SAN ANTONIO, TEX. CD 12/17.

R. W. Barnes Real Estate Co., 1418 W. Hildebrand St., San Antonio, Tex., Owner Builds. $665,000, 25 DWELLINGS, SAN ANTONIO, TEX. CD 12/17.

Ted C. Pruska, 205 Prinz Dr., San Antonio, Tex. Own Forces. $652,000, 23 DWELLINGS, SAN ANTONIO, TEX. CD 12/17.

Belcher & Snodgrass Constr. Co., Seagoville, Tex. CA $681,003, 38 DWELLINGS, SEAGOVILLE, TEX. Rex Putnam, Seagoville, Tex. CD 11/26.

FAR WEST

BIDS ASKED—BUILDINGS

▲ **Idaho, Gooding**—HOSPITAL—BA 1/22—State Dpt. P. Wks., Boise, 3 story, bsmnt., reinforced steel, faced with brick wing for State TB Hospital. $1,000,000. Plans deposit $100. Lloyd Stalker, Idaho Falls, archt. CD 12/29.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **OREGON**—Bureau P. Rds., Dpt. Commerce, Morgan Bldg., Portland,

P. W. Hammer & Assocs., Glide, Ore., CA $573,834, grading 7.11 mi., surf. 19.055 mi., three concrete bridges totaling 360 ft. on Steamboat Creek Rd., Douglas and Lane Counties. Bids Dec. 21.

CALIFORNIA—San Francisco Bay Toll Crossings, 2054 University Ave., Berkeley,

Walsh Constr. Co., 785 Market St., San Francisco, Calif., CA $740,803, approach to Richmond-San Rafael Bridge, Contra Costa Co. Bids Dec. 21, awarded Dec. 27. CD 11/17.

▲ **CALIFORNIA**—State Div. Hys., Los Angeles,

Fred J. Early, Jr. Co., Inc., 369 Pine St., San Francisco, Calif., CA, $1,236,765, bridge and approach embankment across Colorado River at Yuma, Ariz. Bids Dec. 2, awarded Dec. 20. CD 12/8, under LB.

CALIFORNIA—State Div. Hys., Los Angeles,

R. M. Price, 2285 Pine Crest Dr., Altadena, Calif., CA, $540,409, 3 bridges, approaches, paving at 8 St. and S. P. R. R. crossing, City of Colton, San Bernardino Co. Bids Nov. 26, awarded Dec. 22.

▲ **CALIFORNIA**—State Div. Hys., Sacramento,

Stolte, Inc., 8451 San Leandro St., Oakland, and **Gallagher & Burk, Inc.,** 344 High St., Oakland, Calif., CA, $2,040,720, grading, paving, overcrossing, etc. 1.9 mi. between University Ave. and El Cerrito Overhead, Alameda Co.;

Fredrickson Bros., 1259 65 St., Emeryville, Calif., CA, $579,796, grading, surf. 2.1 mi. between Reeves Creek and Hillvilla, Mendocino Co. Bids Nov. 24, awarded Dec. 20. CD 12/8, under LB.

▲ **CALIFORNIA**—State Div. Hys., Sacramento,

Baldwin Contg. Co., P.O. Box 269, Marysville, Calif., CA, $1,576,913, surf. 13.1 mi. between Ben Ali and Roseville, Sacramento and Placer Counties. Bids Dec. 8, awarded Dec. 20. CD 12/15, under LB.

▲ **CALIFORNIA**—State Div. Hys., Sacramento,

A. G. Raisch Co., Box 458, San Rafael, Calif., CA, $1,192,952, surf., tile tunnel, lighting, 3.7 mi. between Manzanita and Golden Gate Bridge, Marin Co. Bids Nov. 17, awarded Dec. 20. CD 11/29, under LB.

▲† **Peter Kiewit Sons' Co., and Fredericksen & Kasler** 345 Kieways Ave., Arcadia, Calif., CA, $5,465,481 Airfield Pavement No. 2, ENG-04-353-55-60, Edwards Air Force Base, MUROC, CALIF. U. S. Eng., 751 Figueroa St., Los Angeles, Calif. Bids Dec. 22, awarded Dec. 28. CD 12/28, under LB.

Slinsen Constr. Co., P.O. Box 539, Napa, Calif., LB $82,261, grade, pave various streets, NAPA, CALIF. City, Napa, Calif.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **J. A. Park Co., Bellevue, Wash., CA, general constr.;**

John's Electric Shop, 215 Main St., Lewiston, Wash., CA, install electric equipment;

Lewiston Pre-Mix Concrete Co., 1401 Snake River Ave., concrete work;

Allis-Chalmers Mfg. Co., 1126 S. 70 St., Milwaukee, Wis., CA pumps and electric motors;

Westinghouse Electric Corp., 401 Liberty Ave, Pittsburgh, Pa., CA, switchgear and sub-station;

General Electric Co., River Rd., Schenectady, N. Y. CA Turbine for 800 ft. long machine room for Pulp and Paper Mill, LEWISTON, IDAHO. Total est. $2,000,000. Potlatch Forests, Lewiston, Idaho. CD 12/13.

George Buckler Co., 4235 S. E. 17 St., Portland, Ore., LB $822,633, 5 story, 72-bed HOSPITAL WING, PORTLAND, ORE., Holladay Park Hospital, 1132 N. E. 2 St., Portland, Ore. Bids Dec. 23. CD 12/3.

Andersen-Westfall Co., 2470 N. W. Nicolai St., Portland, Ore., CA $500,000. three WAREHOUSES, PORTLAND, ORE. Fred Meyer, Inc., 721 S. W. 4 St., Portland, Ore. Awarded Dec. 27.

H. W. Wiseman, 20409 Santa Maria Ave., Castro Valley, Calif., CA, $500,000, SHOPPING CENTER, Santa Maria Ave. near Castro Valley Blvd., CASTRO VALLEY, CALIF. Holtin & Higgins, 20409 Santa Maria Ave., Castro Valley, Calif.

Theo. G. Meyer & Sons, 200 Quint St., San Francisco, Calif., CA, $600,000, APARTMENT HOUSE, SAN FRANCISCO, CALIF. Dr. C. Dong, c/o H. C. Baumann, archt., 251 Kearny St., San Francisco, Calif. Awarded Dec. 23. CD 12/1.

Dinwiddie Constr. Co., 210 Crocker Bldg., San Francisco, Calif., CA, $500,000. TRAINING COLLEGE and alterations SAN FRANCISCO, CALIF. Salvation Army, 101 Valencia St., San Francisco, Calif. Awarded Dec. 23. CD 5/25.

Carl N. Swenson, P.O. Box 558, San Jose, Calif., CA, $858,537, Markham JUNIOR HIGH SCHOOL and Willow Glen SENIOR HIGH SCHOOL, SAN JOSE, CALIF. San Jose City Unified School Dist., 408 Almaden Ave., San Jose, Calif. Bids Dec. 22. CD 11/29.

CANADA

BIDS ASKED—BUILDINGS

Man., Winnipeg—BARRACKS—BA 1/20—Defence Constr. Ltd., 56 Lyon St., Ottawa, Ont., 180-man barrack block, lecture training bldg., and unit drill hall. $850,000. Plans deposit $100. CD 3/3.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **BRITISH COLUMBIA**—B. C. Govt., Douglas Bldg., Victoria,

Marwell Constr. Co. Ltd., 1500 West Georgia St. Vancouver, B. C., LB, $1,715,894, Hy. Sect. 1, 5.99 mi. Horshoe Bay-Squamish. Bids Dec. 17.

Sir Robert McAlpine & Sons (Canada) Ltd., 36 King St. W., Toronto, Ont. CA Est. $500,000. dredging 4 locations in harbor, TORONTO, ONT. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. A. A. Anderson, c/o owner, engr. Bids Dec. 15.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Pigott Constr. Co. Ltd.,** Pigott Bldg., Hamilton, Ont. CA. Total est. $3,500,000. substructure of continuous

(Continued on page 70)

two-way side dumping eliminates truck tie-ups ... keeps rock production high

Assurance of constant, smooth flow of rock from quarry to crusher and elimination of costly truck delays have been achieved by Buffalo Crushed Stone Co. of Bowmansville, N. Y. through a flexible system of two-way side dumping at the crusher.

The greater flexibility of this system was achieved by converting from single truck units to truck-trailer combinations—thus doubling payload capacity for stepped-up production. Since all the dump bodies are designed for two-way dumping, the trucks can roll in on either side of the crusher. Remote-control overhead dumping system enables one man to control the feeding rate and the crusher operation. Feed is uniform...truck delay is eliminated.

Each of the six trucks hauls 28 tons in two side-dump bodies; 14 tons on the truck and 14 on the trailer. They handle grades up to 10% and roll at speeds up to 27 m.p.h. on the level. Each truck makes 22 trips daily between the quarry and the crusher, hauling a total of 3700 tons and using only 1.2 gallons of diesel fuel per hour per truck.

In switching to tandem operation, Buffalo Crushed Stone Co. knew they had a job calling for trucks that "have what it takes." Result: They bought Macks—six Model B-61 six-wheelers powered by Mack Thermodyne® Diesels, and equipped with heavy-duty Mack transmissions to meet stiff grade requirements.

On your job, too, Mack trucks can make the big difference by hauling more—for less.

2716

MACK TRUCKS Empire State Building, New York 1, N. Y.

Two-wheeled Ingersoll-Rand GYRO-FLO 210 compressor, powering paving breakers on U.S. No. 1 in New Jersey.
You'll find the Red Seal Trademark
CONTINENTAL MOTORS
Powerful as the Nation
AMERICA'S STANDARD

. . . EMBLEM OF DEPENDABILITY . . .

INDUSTRIAL GASOLINE ENGINES

Model	Cyl.	Bore	Stroke	Displ.	Bare Engine H.P.
N56	4	2¼	3½	56	14.2 @ 2200 RPM
N62	4	2⅜	3½	62	15 @ 2200 RPM
Y69	4	2½	3½	69	21.4 @ 2400 RPM
Y91	4	2⅞	3½	91	28.5 @ 2400 RPM
Y112	4	3 1/16	3½	112	32 @ 2400 RPM
F124	4	3	4⅛	124	36 @ 2400 RPM
F140	4	3 1/16	4⅛	140	42 @ 2400 RPM
F162	4	3 1/16	4⅛	162	49 @ 2400 RPM
F186	6	3	4⅛	186	60.5 @ 2400 RPM
*E201	4	3⅜	4⅛	201	59 @ 2000 RPM
F209	6	3 1/16	4⅛	209	68 @ 2400 RPM
F226	6	3 1/16	4⅛	226	73 @ 2400 RPM
F244	6	3 1/16	4⅛	244	79 @ 2400 RPM
M271	6	3⅜	4⅛	271	86.2 @ 2400 RPM
M290	6	3¼	4⅛	290	92.2 @ 2400 RPM
M330	6	4	4⅛	330	104.4 @ 2400 RPM
M363	6	4	4 13/16	363	109 @ 2000 RPM
B371	6	4⅛	4⅝	371	110 @ 2400 RPM
B427	6	4 5/16	4⅞	427	127 @ 2400 RPM
G134	4	3⅛	4⅜	134	32.2 @ 2000 RPM
G157	4	3⅜	4⅜	157	37.7 @ 2000 RPM
H227	4	3⅝	5½	227	52 @ 1800 RPM
H243	4	3¾	5½	243	56 @ 1800 RPM
*H260	4	3⅞	5½	260	60 @ 1800 RPM
T371	6	4⅛	4⅝	371	119 @ 2400 RPM
*J382	4	4½	6	382	74.2 @ 1400 RPM
T427	6	4 5/16	4⅞	427	140 @ 2400 RPM
U501	6	4½	5¼	501	160 @ 2400 RPM
R513	6	4½	5⅜	513	164.3 @ 2400 RPM
R572	6	4¾	5⅜	572	182.4 @ 2400 RPM
R602	6	4⅞	5⅜	602	191.7 @ 2400 RPM
S749	6	5⅜	5½	749	217 @ 2200 RPM
S820	6	5⅝	5½	820	237 @ 2200 RPM

INDUSTRIAL DIESEL ENGINES

Model	Cyl.	Bore	Stroke	Displ.	Bare Engine H.P.
GD157	4	3⅛	4⅛	157	39 @ 2000 RPM
*ED201	4	3⅜	4⅛	201	45.8 @ 2000 RPM
HD243	4	3¾	5½	243	54.7 @ 2000 RPM
*HD260	4	3⅞	5½	260	59.3 @ 2000 RPM
*JD382	4	4½	6	382	72.5 @ 1600 RPM
TD427	6	4 5/16	4⅞	427	106.5 @ 2000 RPM
RD572	6	4¾	5⅜	572	142.5 @ 2000 RPM
SD802	6	5 1/16	5½	802	202 @ 1800 RPM

*Available for industrial applications only.

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Continental Motors Corporation
MUSKEGON, MICHIGAN

Continued from page 68

galvanized STRIP MILL, HAMILTON, ONT. The Steel Co. of Canada, Ltd., Wilcox St., Hamilton, Ont. CD 9/20.

Dell Constr. Co., 2461 W. Bloor St. Toronto, Ont., CA, Est. $900,000. 100 DWELLINGS, NORTH BAY, ONT. Central Mortgage & Housing Corp., 40 E. Adelaide St., Toronto, Ont. Bids June 3, CD 5/18.

▲ Lummus Co. Canada, Ltd., 455 Craig St., W., Montreal, Que., CA. Approx. $3,000,000. OIL REFINERY exten. (catalytic reformer unit), MONTREAL EAST, Que. British American Oil Co. Ltd., 800 Bay St., Toronto, Ont. J. H. McHardy, c/o owner, gen. mgr.

ALASKA

BUILDINGS

LOW BIDS AND CONTRACTS

▲† M. R. Smith, Anchorage, Alaska, CA $1,082,589. HOUSING, five frame bldgs. with rein.-con. bsmnts., each to house 8-families, Inv. 55-30, KENAI, ALASKA. U. S. Eng., Anchorage, Alaska, Bids Dec. 20. CD 12/28, under LB.

AMERICANS ABROAD

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Van Kohorn International Corp., 501 Fifth Ave., New York 17, N. Y. CA Approx. $5,000,000. rayon PLANT, FORMOSA. China Artificial Fiber Corp., c/o contractor.

Proposed Projects——

WATER SUPPLY

▲ Mich., Grand Rapids—City, George W. Welsh, mgr., City Hall, water sys., filtration plant, M-20 and West Beltline, $3,800,000; water main from filtration plant to south end of city, $2,300,000; distr. facilities other section, $900,000. Consoer, Townsend & Assoc., 351 E. Ohio St., Chicago, Ill., consult. engrs. CD 6/28.

STREETS AND ROADS

▲ WASHINGTON—State Hy. Comn., Olympia.
Grays Harbor Co.—imprv. Primary State Hy. No. 9 Arctic to Montesano, $2,000,000.
Elma-Grand Mount, $708,100.
Primary State Hy. 13 Aberdeen-Raymond. $2,315,000.
realign Hy. 9 from north city line of Hoquiam to Lincoln and Ramer Sts. with bridge over Little Hoquiam River. $419,100.
resurf., widen Wishkah Bridge to Aberdeen City Limits, $173,500.
resurf., widen Aberdeen-Montesano. $386,600.
reconstr. Wynooche Ave. (Primary State Hy. No. 9) in Montesano on new alignment. $241,600.
Grays Harbor, Clallam and Jefferson Counties—Imprv. Olympic Hy. (Primary State Hy. No. 9), $12,000,000.
Grays Harbor and Jefferson Counties—imprv. Secondary State Hy. 9-C Hoquiam to jct. with Hy. 9 at Queets. $1,250,000.
Grays Harbor and Thurston Counties—relocate Primary State Hy. 9 Elma to Summit Lake Rd. on new alignment with 2 bridges. $3,457,000.
Pacific and Grays Harbor Counties—imprv. Secondary State Hy. 13-A Raymond to Aberdeen. $5,682,000. CD 9/5/51.
Pacific and Lewis Counties—imprv. Primary State Hy. 12 Raymond to Chehalis. $1,750,000.
Pacific and Wahkiakum Counties—impr. Primary State Hy. No. 12 Raymond to Cathlamet. $2,560,000.
Thurston Co.—imprv. Primary State Hy. 9 Summit Lake Rd. to Mud Bay jct., $1,642,100.
Mud Bay Jct. to Tumwater. $1,500,000.
Harrison St. and Olympic Way in Olympia. $108,300.
Whatcom Co.—4-lane freeway thru Bellingham on Primary State Hy. No. 1, $3,500,000. W. A. Bugge, state hy. dir. CD 8/31/52.

EARTHWORK, WATERWAYS

▲ Montana—Washington Water Power Co., W825 Trent St., Spokane, Wash., hydro dam on Clark Fork River at Noxon Rapids. $85,000,000. Ebasco Services, Inc., 2 Rector St., New York, N. Y., consult. engr. CD 12/9.

AIRPORTS

▲ † N. D., Minot—JET FIGHTER BASE—U. S. Eng., 1709 Jackson St., Omaha, Neb., plans by Kurke Assocs., 1117 13 Ave. N., Fargo, jet fighter base. $10,000,000.

PUBLIC BUILDINGS

▲ Calif., LaMesa-Spring Valley — SCHOOLS — LaMesa-Spring Valley Elementary School Dist., defeated $1,500,000 bonds Dec. 16, schools. CD 10/6.

▲ **Calif., Sunnyvale**—HOSPITAL—Doctors General Hospital, 976 Lenz Ave., San Jose, plans by Donald Francis Haines, 144 W. San Carlos St., San Jose, 96-bed hospital, Wright Ave. $1,000,000.

▲ **Conn., Bristol**—SCHOOL—City, School Bldg. Comn., City Hall, high school. $1,000,000.

▲ **Conn., Rockville**—SCHOOL—Town, John Talcott, chn. Bldg. Comn., plans by Sherwood F. Jeter & Assoc., 36 Pearl St., Hartford, high school. $1,250,000.

▲ **Ill., Western Springs**—HIGH SCHOOL, etc.—High School Dist. 204, Western Springs, plans by Perkins & Will, 309 W. Jackson Blvd., Chicago, Zone 6, high school and athletic field. $4,000,000.

▲ **Minn., Duluth**—SCHOOLS—Bd. Educ., H. J. Forsberg, clk., A. J. Ward, ch. engr., 226 N. First Ave. E., plans by T. J. Shefchik, 308 Lonsdale Bldg., Junior High School, Ordean Field, $1,400,000; plans by A. R. Melander, 903 Alworth Bldg., Ely-West Junior High School and addn., $1,400,000. CD 4/16.

▲ **Mont., Warm Springs**—HOSPITAL—State, Bd. Examiners, Helena, plans by Van Teylingen, Knight & Van Teylingen, Medical Arts Bldg., Great Falls, 1 story hexagonal receiving and treatment hospital at state mental hospital, incl. dormitories inside circle of treatment and hospital rooms. Est. $2,000,000. CD 11/10.

▲ **Neb., Beatrice**—SCHOOL—Bd. Educ., Beatrice, plans by C. W. & J. A. Shaver, Salina, Kan., school constr., imprvs. $1,000,000. CD 12/21.

▲ **Nev., Reno**—OFFICE—State Dpt. Hys., State Office Bldg., Carson City, highway department division office bldg. $1,100,000.

▲ **N. J., New Brunswick**—HOTEL, etc.—New Brunswick Redevelopment Agency, City Hall, plans by Turano-Gardner Assoc., 35 W. 53 St., New York 19, N. Y., hotel, convention hall, office and other business and parking bldgs. $10,000,000.

▲ **N. Y., Levittown**—SCHOOLS—District Five School Bd., Levittown, Summit Lane School addn., $464,640; elementary school, Lee Rd., $760,000; Junior-Senior High School, N. Jerusalem Rd., $2,320,000; elementary school, Old Motor Parkway, $422,400. CD 3/18.

▲ **Tex., Beaumont**—WAREHOUSING, etc.—Port of Beaumont, 1255 Main St., voted bonds Dec. 18, warehousing, $1,000,000; port rehabilitation work, $750,000; turning basin expansion, $750,000. CD 12/3.

▲ **Wash., Bellingham**—SCIENCE—Western Washington College of Educ., Bellingham, science bldg. $1,250,000.

▲ **Wyo., Cheyenne**—SCHOOL—School Dist. No. 1, Laramie Co., 2118 E. Central Ave., plans by Sam C. Hutchings, Jr., 1902 Thomas Ave., school expansion, incl. 4 elementary schools, completion of Eastridge and Johnson Junior High Schools, Rossman and Chaplin School addns. $2,500,000. Kellogg & Kellogg, 2309 Warren Ave., consult. engrs. CD 12/23.

▲ **N. S., Halifax**—FEDERAL—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., plans by E. A. Gardner, ch. archt., c/o owner, exten. present federal govt. bldg. on Bedford Row, incl. helicopter port for airmail service to Kelly Lake airport 20 mi. distant. $1,200,000.

▲ **Sask., Regina**—SCHOOL—Regina School Bd., plans by Van Egmond & Storey, McCallum Hill Bldg., 2 and 3 story composite high school, Collegiate River Heights subdivision. $1,620,400. CD 11/18.

COMMERCIAL BUILDINGS

▲ **Calif., Cupertino** — SHOPPING CENTER — Stern & Price Development Co., P. O. Box 188, shopping center, Rancho Rinconado, $5,000,000.

▲ **Calif., Irvington**—SHOPPING CENTER—Sunnyacres Development Co., Rt. 1, Box 144-A, shopping center, Hy. 17, adjacent to Irvington Grammar School. $1,000,000.

▲ **Calif., LaJolla**—DWELLINGS—Marine Development Co., Inc., 2170 Avenida De La Plaza, plans by Wm. M. Bray, 962 N. La Cienega Blvd., Los Angeles, 450 frame, stucco dwellings. $4,000,000.

▲ **Colo., Colorado Springs**—HOTEL and STORE—H. Dale Miller & Roy F. Toy, 620 W. Colorado Ave., plans by Earle A. Diets, engr.-archt., Mining Exchange Bldg., 17 story, 190x200 ft., 290,000 sq. ft. hotel and store. $7,000,000.

▲ **Conn., Hartford**—OFFICE—John E. Hayes Realty Co., 526 Farmington Ave., plans by Julius Berenson & Clifton C. West, 48 Forest St., 3 story, 80,000 sq. ft., brick, limestone office Woodland and Asylum Sts., $2,000,000, Factory Insurance Assoc., 555 Asylum St., lessee.

▲ **Del., Wilmington**—APARTMENT—Pau-mar Corp., Att. Harry Ruberstein, Equitable Trust Bldg., 154-suite, apartment, 2601 Penna. Ave. $4,500,000.

▲ **Ga., Atlanta**—SYNAGOGUE—Ahavath Achim Congregation, 346 Washington St., plans by Robert & Co., 96 Poplar St. N. W., synagogue and Sunday School, 600 Peachtree Battle Ave. N. Y. $1,200,000.

▲ **Ill., Waukegan**—SHOPPING CENTER—Cain & Culhane, 4545 N. Broadway, Chicago, plans by Clarence L. Dahlquist, 1625 Glenview Rd., Glenview, shopping center, Glen Flora Rd. and Lewis Ave. $1,000,000.

▲ **Mass., Boston**—SHOPPING CENTER—Koufman Constr. Co., 20 Pemberton Square, plans by Herman L. Feer & William E. Nast, 27 School St., 1 story, masonry shopping center, incl. 15 bldgs., American Legion Hy., Roslindale, $1,000,000.

▲ **Mo., North Kansas City**—OFFICE—Consumers Cooperative Assn., 318 E. 10 St., Kansas City, Mo., office. $1,000,000.

▲ **N. Y., Buffalo**—BANK—Federal Reserve Bank of New York, 33 Liberty St., New York, plans by James, Meadows & Howard, 250 Delaware Ave., Buffalo, and Eggers & Higgins, 100 E. 42 St., New York, 3 story, limestone, granite bank; 2 story vault; loading platforms. $3,000,000. CD 8/14/53.

▲ **N. Y., Hempstead**—HOSPITAL—Hempstead General Hospital, c/o Samuel Paul, archt., 89-51 164 St., Jamaica, Zone 3, 185-bed general hospital. 800 Front St. between Beverly and Clarendon Rds. $2,000,000.

▲ **N. Y., New York**—DEPARTMENT STORE—Arnold Constable, Fifth Ave. at 40 St., Zone 17, plans by Gerhard E. Karplus, 33 E. 75 St., Zone 21, 8 story addn. to present 6 story bldg., Fifth Ave. and 40 St. $3,000,000.

▲ **O., Columbus**—DORMITORY, etc.—Capital University, Harold Yochum, pres., 2199 E. Main St., bldg. to house married seminary students; men's dormitory; addnl. facilities for music, speech, fine arts. $1,200,000.

▲ **O., Kettering**—HOUSING—Elzo and Ancil Newport, Newport Builders, 4633 Elmer St., Dayton, 250 brick, ranch-style homes on 112 acre site, west side of Wilmington Pike, south of Bigger Rd. $5,000,000.

▲ **Okla., Tulsa**—HOUSING—Metropolitan Building Co., Tri-State Bldg., 325-unit housing addn., 41st and Yale Sts. $4,500,000. L. R. Latch, c/o owner, engr.

▲ **Pa., Ardmore**—STORE—Ardmore Shopping Center, 1325 Walnut St., Phila., plans by Thalheimer & Weitz, 1325 Walnut St., department store and parking lot. $3,000,000.

▲ **Tex., Dallas**—HOSPITAL—Baylor University Hospital, 3500 Gaston St., 130-bed hospital expansion. $2,890,000.

▲ **Tex., Dallas**—APARTMENT—Beverly Constr. Co., 3800 NW Hy., plans by Charles Brundo, Jr., 3800 NW Hy., 116-unit masonry apartment, Kings Rd. and Bradford St. $1,000,000.

▲ **Tex., Dallas**—HOSPITAL—Childrens Medical Center, 2306 Welborn St., 72-bed hospital expansion. $1,490,000.

▲ **Tex., Dallas**—HOSPITAL—Methodist Hospital, 301 W. Colorado St., 260-bed hospital expansion. $4,780,000.

▲ **Tex., Dallas**—HOSPITAL—St. Paul's Hospital, 3123 Bryan St., 116-bed hospital expans. $2,430,000.

▲ **Tex., Houston**—COMMUNITY CENTER—Paul F. Barnhart, Commerce Bldg., 1 story, 100,000 sq. ft. masonry community center, $1,000,000; 2 and 3 story commercial bldg. addn., $300,000, 12-acre tract, San Felipe and Sage Rds.

▲ **Tex., Pasadena**—APARTMENT—Joe Robinowitz, 22 W. Oak Dr. North, Houston, plans by Anthony Luciano, 10429 Memorial St., Houston swank apartment proj., incl. swimming pool. $1,500,000.

▲ **Wash., Seattle**—STORES—University Properties, Inc., Cobb Bldg., plans by Naramore, Bain, Brady & Johanson, 904 7th Ave., 10-story bldg. with stores, offices and parking facilities. $2,000,000. CD 12/15.

INDUSTRIAL BUILDINGS

▲ **Ill., Morton Grove**—FACTORY—Minneapolis Honeywell Regulator Co., 8600 Austin Ave., plans by Ellerbe & Co., 1st. Natl. Bank Bldg., St. Paul, Minn., 1 story factory. $1,000,000.

▲ **Miss., Lumberton**—REFINERY—Pontiac Eastern Corp., c/o Pontiac Refining Corp., 3400 Lawrence Dr., Corpus Christi, Tex., 12,000 bbl. per day oil refinery, near here. $10,000,000.

▲ **O., Dayton**—PUBLICATIONS—Dayton Daily Journal Herald, 111 E. 4 St. and Dayton Daily News, 4th and Ludlow Sts., publications bldg. for two newspapers. $3,000,000.

▲ **O., Mansfield**—FACTORY—Humphryes Mfg. Co., D. J. Jones, pres., Mansfield, 125,000 sq. ft. factory to mfr. kitchen and bathroom equip. for plant and offices $2,500,000.

▲ **Ont., Kenora**—MILL—Minnesota & Ontario Paper Co., Baker Arcade Bldg., Minneapolis, Minn., U.S.A., paper mill expansion, $16,800,000. CD 7/17/45.

UNCLASSIFIED

▲ **Texas and Mexico**—GAS PIPE LINE—Coastal Transmission Corp., J. O. Sue, pres., c/o Commerce Bldg., Houston, Tex. (affiliate of Delhi Oil Corp., 1315 Pacific St., Dallas, Tex.), 400 mi. 30 in. welded joint gas pipe line carrier from Reynosa-Comitas areas, Mexico to Beaumont, Tex. $35,000,000; gas pipe main booster station, Reynosa-Comitas area, Mexico, $750,000; gas pipe main booster station, near Beaumont, Tex. $500,000; natural gas terminal facilities, Beaumont, Tex., $500,000. W. J. Bowen, Delhi's supv. engr. (consult.)

▲ **Texas**—RURAL DISTRIBUTION LINES—Guadalupe Valley Electric Co-operative, Gonzales, 175 mi. distr. lines to serve rural areas and sys. imprvs., Gonzales Co. $1,000,000. CD 1/4.

▲ **Texas**—OIL PIPE LINE, etc.—Shamrock Oil & Gas Corp., J. H. Dunn, pres., 1st Natl. Bank Bldg., Amarillo, 100 mi. 6 in. crude oil pipe line, Hale City, vicinity Abernathy, $775,000; 175,000-bbl. crude storage facilities, Hale City, vicinity Abernathy, $125,000; terminal plant, Hale City, vicinity Abernathy, $200,000.

▲ **Tex., Atlanta**—STATE PARK—Texas State Park Bd., Administration Bldg., Austin, development of 1500 acre State Park, on Texarkansa Reservoir. $1,250,000.

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NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
January 17, 24 Connecticut
STREETS AND ROADS
January 17 Connecticut January 18 Massachusetts

† **Me., Bangor**—HANGARS—BA 1/25—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., two multi-purpose hangars, Dow Air Force Base, ENG-19-016-55-66, $700,000-$800,000. Plans deposit $25, refundable. Charles T. Main, Inc., 80 Federal St., Boston, Mass., engr. CD 12/17.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MAINE—State Hy. Comn., State House, Augusta,
Ellis C. Snodgrass, Inc., 465 Congress St., Portland, Me. CA $905,051. Cousins Island Bridge, Yarmouth. Bids Dec. 29. CD 12/13.

† **Davison Constr., Inc.,** 136A Elm St., Manchester, N. H. CA $635,000, est. $700,000-$800,000. Warehouse Base Bulk Supply No. 1C-Paint Dope Bldg., Engine Build-up Bldg., Base Parachute Shop, Air Force Base, ENG-19-016-55-55, PORTSMOUTH, N. H. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Dec. 23. CD 12/13.

† **Davison Constr., Inc.,** 1306 A Elm St., Manchester, N. H. LB $824,000, est. $900,000-$1,000,000. strategic squadron headquarters and operations bldg., Portsmouth Air Force Base, ENG-19-016-55-57, PORTSMOUTH, N. H. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Jan. 4. CD 12/14.

MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
E. T. O'Neill & Son Constr. Co., 39 Myrtle St., Holyoke, Mass. LB $861,818, est. $1,050,000. hy. and bridge, Chicopee. Bids Jan. 4. CD 12/15.

▲ **Daniel O'Connell's Sons, Inc.,** 480 Hampden St., Holyoke, Mass. CA $2,990,000, est. $3,000,000. Manham Dam, West Branch of Manham River, Southhampton, HOLYOKE, MASS. City, Bd. Water Comrs., City Hall, Holyoke, Mass. CD 9/1, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

Shuman Constr. Co., 252 Cypress St., Brookline, Mass. CA Approx. $700,000. PLANT OFFICE, Mystic Valley Parkway, MEDFORD, MASS. Englander Co., Inc., 32 Green St., Boston, Mass. Arthur Winebaum, 68 Devonshire St., Boston, Mass., archt.

M. S. Kelliher Co., 294 Washington St., Boston, Mass. CA Approx. $700,000. MOTHER HOUSE, Center St., MILTON, MASS. Congregation of Sisters of St. Joseph, 303 Adams St., Milton, Mass. Chester F. Wright, 681 Main St., Waltham, Mass., archt. CD 10/22/53.

Leonard Rugo, 30 Huntington Ave., Boston, Mass. LB $707,800, est. $700,000. Northwest Elementary SCHOOL, Casey Property, WALTHAM, MASS. City, 55 School St., Waltham, Mass. Bids Dec. 23. CD 12/9.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
January 25, February 1 Maryland
STREETS AND ROADS
January 18, 25 Maryland February 3 New Jersey

▲† **N. Y., Plattsburgh**—HOUSING—BA 1/18—U. S. Eng., 80 Lafayette St., New York, Zone 13, housing and utilities, FYY 55, Plattsburgh Air Force Base. $3,000,000-$5,000,000. Extended date. Seelye, Stevenson, Value & Knecht, 101 Park Ave., New York, Zone 17, engrs. CD 12/17.

▲† **N. Y., Plattsburgh**—BUILDINGS, UTILITIES—BA 1/25—U. S. Eng., 80 Lafayette St., New York, Zone 13, bldgs. and utilities, FY 55, Plattsburgh Air Force Base. $5,000,000. Extended date. Seelye, Stevenson, Value & Knecht, 101 Park Ave., New York, Zone 17, engrs. CD 12/16.

▲† **New York**—BA 2/3—U. S. Eng., Plancor Rd., Massena, excav. approx. 2,000,000 cu. yd. glacial till for Robinson Bay Lock, approx. 3½ mi. northeast of Massena, St. Lawrence Seaway, St. Lawrence River, Contr. No. 2, CIVENG-30-023-55-40 (for the St. Lawrence Seaway Development Corp.), St. Lawrence Co. Plans deposit $25. CD 12/17.

BIDS ASKED—BUILDINGS

▲ **Pa., Glenside**—SCHOOL—BA 1/27—Cheltenham Twp. School Dist. Auth., Elkins Park, school in West Glenside Sect. $1,000,000. Heacock & Platt, 1505 Race St., Phila., archts. Earl P. Allabach Assocs., 16 S. Broad St., Phila., engrs. CD 12/30.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Atlantic Gulf & Pacific Co., 15 Park Row, New York, N. Y. CA $749,170. placement of sand fill by hydraulic dredge on east shore of Staten Island, Richmond Co., NEW YORK. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. CD 12/7, under LB.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,
Tully & DiNapoli, Inc., 127-50 Northern Blvd., Corona, N. Y., CA $1,887,708, Horace Harding Ex. Sect. II (Cont. No. 3-A) (0.40 Acc.) 0.53 mi. FAHHE. 54-1, Queens Co. Bids Dec. 23. CD 12/28, under LB.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,
Walsh Constr. Co., 122 E. 42 St., New York 17, N. Y., CA, $6,491,760, New York State Thruway-Niagara Sect.-Sub N4 (Court St. to Main St.); Fuhrmann Blvd. Interchange (0.69 mi. Acc.) 2.9 mi. FANETC 54-14 P, Bronx Co.;
Rusciano & Son Corp. & Del Balso Constr. Corp., 50 Mt. Tom Rd., Pelham Manor, N. Y., CA, $3,288,303 New York State Thruway, New England Sect. Sub 6 (Cont. 2) (6.5 Acc.) 29 mi. FANETC 54-13 P, Bronx Co.;
Savin Constr. Corp., 10 Village St., East Hartford, Conn., CA, $1,635,920, City of Syracuse; State Fair Blvd., Lake Onondago West Shore Development North-West Arterial Connection (Cont. 1) (0.39 ACC) 1.3 mi FAC 54-16, FGSH 54-17, Onondaga Co., CA, $3,666,064, Binghamton City; Vestal Ave. Bypass FAC 49-8, Binghamton City; Court St.-Rte. 17 Connection Susquehanna River Bridge 2.28 Acc. 0.91 mi. FARC 54-108-FAC 54-17, Broome Co.;
Yonkers Contg. Co., Inc., 969 Midland Ave., Yonkers, N. Y., CA, $5,047,208, New York State Thruway New England Sect. Sub 4 (Mamaroneck Ave.-Central Ave.) 2.37 Acc. 2.84 mi. FANETC 54-10 FANET 54-11 Westchester Co.;
John Arborio, Inc., W. Cedar St., Poughkeepsie, N. Y., CA, $1,428,956, New York City Board of Water Supply (Pepacton Reservoir) Rds. 3, 3D, 10, 10A and 10AT 7.34 mi. Contr. 54BWS 3, 3D, 10, 10A, 10AT Delaware Co. Grand total, $21,568,211. Bids Dec. 23. CD 12/28, under LB.

† **Mathew L. Carroll,** 101 Park Ave., New York, N. Y., CA $930,680, air force facilities, FY 1955, Griffiss Air Force Base, ENG-30-075-55-155, ROME, N. Y. U. S. Eng., 80 Lafayette St., New York 13, N. Y. Bids Dec. 22. CD 11/22.

▲ **PENNSYLVANIA**—State Hy. & Bridge Auth., 506 N. Office Bldg., Harrisburg,
Keelor Constr. Co., Pennsburg, Pa., CA, $2,616,121 Constr. 5.3 mi. link of West Chester Pike (Route 3) Delaware Co. Bids Nov. 19, awarded Jan. 5. CD 11/23, under LB.

▲ **PENNSYLVANIA**—Pennsylvania Turnpike Comn., 11 E. 4 St., Harrisburg.
H. J. Williams, Inc., York, Pa., LB $2,898,506 constr. 3.59 mi. Section 36-D, Northeastern Extension Washington Twp., Lehigh Co. Bids Jan. 5. CD 12/16.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg,
Eichleay Corp., 33 S. 19 St., Pittsburgh, Pa., CA $1,586,592, constr. superstructures for viaducts on eastbound Penn-Lincoln Parkway over B. & O. RR, the west bound parkway over Brady St., on Ramps T and V and portion of Ramp R, TR 22-30, Allegheny Co. Bids Dec. 21. CD 12/27, under LB.
Buckley & Co., Inc., 1317 S. Juniper St., Phila., Pa. CA $998,660, general contract Central Schuylkill force mains and gravity conduit, PHILA., PA. Dpt. Procurement, City Hall Annex, Phila., Pa. Bids Nov. 26. CD 10/27.
MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,
Wright Contg. Co., Box 1850, Columbus, Ga. CA $705,516. 3 span continuous steel girder bridges over Anacostia River Rte. 1 and 3 span bridge of same river U. S. Rte. 50 and Alt. No. 1, Contr. P 695-1-320, Prince George Co. CD 12/6, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Diesel Constr. Co., Inc.,** 261 Madison Ave., New York, N. Y., CA Est. $6,325,000. general contract 20 story, 371,000 sq. ft., air-conditioned OFFICE, 711 Third Ave., NEW YORK, N. Y., 711 Third Ave., Inc., 342 Madison Ave., New York 17, N. Y. CD 9/18/53.
John W. Rouse Constr. Corp., 8 Church St., Gouverneur, N. Y. CA $767,767. MUSIC BLDG., State University Teachers College, POTSDAM, N. Y. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. CD 1/4, under LB.
▲ **Kay Gardens,** 349 Walnut St., Audubon, N. J., Own Forces. $1,250,000. RESIDENTIAL DEVELOPMENT, PEDRICKTOWN, N. J.
▲ **Thomas Constr. Co.,** Somerdale, N. J., Own Forces. $1,500,000. 120 home RESIDENTIAL DEVELOPMENT, SOMERDALE, N. J.
▲ **Becker Constr. Co.,** 361 Grove St., Newark, N. J., CA, $1,011,001, JUNIOR HIGH SCHOOL, UNIONVILLE, N. J. Bd. Educ., Morris Ave., Unionville, N. J. Bids Dec. 7. CD 11/15.
▲ **Irwin & Leighton,** 1505 Race St., Phila., Pa., CA $1,199,590, Memorial HOSPITAL, ELIZABETHTOWN, PA. Masonic Homes, Elizabethtown, Pa. Bids Dec. 22. CD 12/1.
▲ **Taylor Constr. & Development Co.,** 7267 Rising Sun Ave., Phila., Pa. Separate Contracts., $1,500,000 RESIDENTIAL DEVELOPMENT, Hartel St., PHILA., PA.
Sidney Elkman, Wilford Bldg., Phila., Pa., CA, $650,000 100-unit APARTMENT, PHILA., PA. Owner, c/o contractor. Roth & Fleisher, 1420 Walnut St., Phila., Pa., archts.
▲ **Tower Constr. & Development Co.,** 7267 Rising Sun Ave., Phila., Pa. Separate Contracts. $1,500,000. RESIDENTIAL DEVELOPMENT, Hartel St., PHILA., PA. S. Sherwin Rochlis, 5664 Diamond St., Phila., Pa., archt.
▲ **Navarro Corp.,** 6219 Broad St., Pittsburgh, Pa., CA $3,830,000, general constr.;
E. C. Ernst, Inc., 725 Campania Ave., Pittsburgh, Pa. CA $524,319, electrical work for 16 story STATE OFFICE BLDG., at Gateway Center, PITTSBURGH, PA. General State Auth., 18 and Herr Sts., Harrisburg, Pa. Bids Dec. 22. CD 12/27, under LB.
▲ **Diller Plank, Inc.,** Willow St., Lancaster, Pa., CA $1,474,934, general constr. Avon Grove Area HIGH SCHOOL, WEST GROVE, PA. Avon Grove Consolidated School, West Grove, Pa. CD 1/9/53.
Consolidated Engineering Co., 20 E. Franklin St., Baltimore 2, Md. CA $800,000. 1 and 2 story, steel, masonry Lithographing PLANT, 4720 Boston St., BALTIMORE, MD. Crown Cork & Seal Co., O'Donnell and Newkirk St., Baltimore, Md. Harry H. Moulton, 112 Oak Drive, Catonsville, Md., archt. Wm. B. Spencer, c/o owner, engr. CD 11/24/50.
James Keelty & Co., Edmonson Ave., Baltimore, Md. Owner Builds. $673,000. 87 brick row type HOUSES, Frederick Rd., E. Medwick Garth and S. Medwick Garth, BALTIMORE, MD.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
January 18 South Carolina, Virginia
STREETS AND ROADS
January 18 South Carolina, Virginia

BIDS ASKED—BUILDINGS

▲† **W. Va., Wheeling**—HOSPITAL, etc.—BA 3/2—Ohio Valley General Hospital, 20 and Eoff Sts., 6 story, bsmnt., 44x82 ft., steel hospital addn., alterations, 2 story, 33x35 ft., boiler house and present building alterations, $6,000,000. Plans deposit $75. Frederic Faris, 1117 Chapline St., archt.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

T. A. Loving & Co., Bank of Wayne Bldg., Goldsboro, N. C., CA $743,191, water and sewer imprvs., CLINTON, N. C. City, Clinton, N. C. Bids Dec. 22. CD 1/4, under LB.

▲ **FLORIDA**—State Road Dpt., Tallahassee,
Duval Eng. & Contg. Co., 1746 E. Adams St., Jacksonville, Fla. LB, $1,643,665, est. $2,000,000. riverside link to Fuller Warren Bridge in Jacksonville, Florida Expressway System, Fed. Aid Proj. IN-I-003-7 (8), Job 7202-279 and Job 7202-179, Duval Co. Bids Jan. 3. CD 12/13.
T. L. James & Co., Inc., Drawer 8, Kenner, La. CA $707,631. East West runway, taxiways and run up apron, pavement constr. repairs and overlay, Kenner, NEW ORLEANS, LA. City, Aviation Bd., Kenner, La. Awarded Dec. 28. CD 10/19.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Morris Skilken & Co., Inc.,** 44 E. Broad St., Columbus, O., CA $2,780,803, HIGH SCHOOL and GYMNASIUMS at Logan and Man, LOGAN, W. VA. Logan Co. Bd. Educ., Court House, Logan, W. Va. Bids Nov. 5. Bids 9/20 rejected. CD 8/17.
† **The Southeastern Constr. Co.,** 301 W. 2 St., Charlotte, N. C., LB $947,500, first phase of const. to convert the Charlotte Army Quartermaster Depot into a Nike guided missile PLANT to incl. 20 per cent of needed constr., special roofing of all bldgs. and extensive repair of the depot's No. 1 bldg., CHARLOTTE, N. C. Department Defense, The Pentagon, Wash. 25, D. C. Western Electric Co. and Douglas Aircraft Co., Inc. will operate. CD 10/15.
Barksdale & LeBlanc, Box 1567, Baton Rouge, La. LB $636,320. 4 story, steel, concrete OFFICE, BATON ROUGE, LA. Gulf States Utilities Co., 340 Florida St., Baton Rouge, La. Bids Dec. 22. CD 12/8.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
January 19 Michigan
STREETS AND ROADS
January 19 Michigan February 15 Ohio

BIDS ASKED—BUILDINGS

Ill., Alton—SCHOOL—BA 1/26—Bd. Educ., Alton Community Unit School Dist. No. 11, J. B. Johnson, supt. Schools, Haskell House, 1211 Henry St., Alton, 2 story, 87x442 ft., with 93x1092 ft., and 63x137 ft. wings, brick, steel, concrete, masonry blocks East Junior High School, $600,000. Plans deposit $30. Albert M. Goedde & Assocs., 1452 State St., East St. Louis, archts.-engrs. CD 2/12/53.
▲ **W. L. Harper Co.,** 2910 Highland Ave., Norwood, O. CA $556,471, Sect. A,

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Cloud & Alverneiso, Empire Bldg., Bellefontaine, O. CA $600,791, Sect. B; LB $307,906, Sect. C,

H. F. Hosea Co., 410 Elliott St., Arlington Heights, Cincinnati, O., CA $179,774, Contr. 3;
Pittsburgh-DeMoines Steel Co., 3436 Neville Island, Pittsburgh, Pa., CA $102,835, Contr. 4A, for Clermont Co. water supply sys. and pumping station, BATAVIA, O. Grand total $1,747,777. Bd. Comrs., Clermont Co., Court House, Batavia, O. Bids Dec. 28, awarded Dec. 31. CD 11/19.

▲† **Markowitz Bros., Inc.**, 5600 N. E. 4 Ave., Miami, Fla. CA $2,759,825, constr. central heating plant addn., distr. lines, and auxiliaries, Lockbourne Air Force Base, Serial No. ENG-46-022-55-6, COLUMBUS, O. U. S. Eng., 237 Fourth Ave., Huntington 18, W. Va. Bids Dec. 10. CD 11/24.

† **Hughes-Simonson, Inc.**, 20 N. McGee St., Dayton, O. CA $955,556, rehabilitation propeller and power plant laboratories, hazardous areas, Area "B", Wright Patterson Air Force Base, (IFB)-33-601-55-16B, DAYTON, O. Procurement Div., Directorate of Material, EWMP Bldg. 120, Area C, Wright Patterson Air Force Base, Dayton, O. Bids Oct. 18, awarded Dec. 7. CD 9/23.

Walker-Fauber, Inc., 319 Claremont Ave., Ashland, O. CA $705,102, est. $892,108, water sys. for Stow Twp. to serve approx. 1,100 homes, STOW, O. Comrs. Summit Co., Court House, Akron, O. Bids Dec. 20. CD 12/30, under LB.

Kenny Constr. Co., 3220 Oakton St., Skokie, Ill., LB $652,468, grade separation, Congress Expressway C. & W.I.R.R.R., CHICAGO, ILL. Cook Co., County Bldg., Chicago 2, Ill. Bids Dec. 28.

MICHIGAN—State Hy. Dpt., Stevens T. Mason Bldg., Lansing,

S. J. Groves & Sons, Wesley Temple Bldg., Minneapolis, Minn. LB $735,925, est. $1,000,000. sub-base constr. 10.984 mi. Detroit-Toledo Expressway from intersection of Dean Rd. and US-24A northeast to River Raisin, BM 58-57 C12-R (N 58-57 C-13), Monroe Co. Bids Dec. 29. CD 12/14.

† **A. J. Etkin Constr. Co.**, 10111 Capitol St., Oak Park, Mich. CA $861,951. special AAA facilities, Detroit Area, MICHIGAN. U. S. Eng., 1900 Cadillac Tower, Detroit, Mich. Bids Dec. 17. CD 11/30.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Sollitt Constr. Co. Inc.**, 301 Columbia St., South Bend, Ind., CA 225,000-kw steam electric GENERATING UNIT;
General Electric Co., 1 River Rd., Schenectady, N. Y. CA, turbo-generator;
Babcock & Wilcox Co., 161 E. 42 St., New York 17, N. Y., CA, boiler, foregoing is for third unit of plant at the Muskingum River Plant, near BEVERLY, O. Total est. $29,600,000. Ohio Power Co., 301 Cleveland Ave., S. W., Canton, O. CD 12/9.

▲ **W. H. Dick Constr. Co.**, 17206 Miles St., Cleveland, O., CA Approx. $1,000,000. Marymount HIGH SCHOOL for Girls, Granger Rd., GARFIELD HEIGHTS, O. Sisters of St. Joseph, 12215 Granger Rd., Cleveland, O. CD 3/19.

Peters Constr. Co., 2640 N. Humboldt Ave., Milwaukee, 12, Wis., CA, $750,000. Southgate SHOPPING CENTER addn., MILWAUKEE, WIS. Froedtert Enterprises, 735 N. Water St., Milwaukee, 2, Wis. Bids Dec. 14. CD 12/7.

▲ **J. A. Utley**, Box 6, North End Station, Detroit 2, Mich., **Walter L. Couse & Co.**, 12740 Lyndon Ave., Detroit 27, Mich. and **Barton-Malow Co.**, 2631 Woodward Ave., Detroit 1, Mich., CA general contract;
W. E. Wood Co., 4649 Humboldt Ave., Detroit 8, Mich. CA, foundation contract;
R. C. Mahon Co., 6565 E. 8 Mile Rd., Detroit, Mich., **Taylor & Gaskin, Inc.**, 2210 Park St., Detroit, Mich. and **Copco Steel & Engineering Co.**, 14035 Grand River St., Detroit, Mich. CA steel contract for ASSEMBLY PLANT, POWER HOUSE, PLANT alterations, conveyor bridge and equip., DETROIT, MICH. Total est. $20,000,000. Chrysler Corp., 341 Massachusetts Ave., Detroit, Mich. Albert Kahn Associated Architects & Engineers, Inc., 345 New Center Bldg., Detroit, Mich., engr.-archt.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
January 21 Minnesota, Texas
STREETS AND ROADS
January 18 Kansas January 20, 21 Texas
January 21 Minnesota

† **Okla., Enid** — AIRFIELD PAVING — BA 2/2 — U. S. Eng., Box 61, Tulsa, Zone 2, airfield paving, Vance Air Force Base Inv. No. ENG-34-066-55-37. $450,000-$875,000. CD 6/25/51.

† **Ark., Walnut Ridge**—BUILDINGS, etc.—BA 2/9—U. S. Eng., P.O. Box 867, Little Rock, erecting prefabricated buildings, towers, installing generator sets, furnishing, directing prefabricated steel automotive maintenance bldgs., Walnut Ridge Airport, Serial No. ENG-03-050-55-73. $500,000-$1,000,000. Extended date. CD 1/4.

BIDS ASKED—BUILDINGS

† **N. M., Los Alamos**—BA 2/16—U. S. Atomic Energy Comn., Procurement Sec., Los Alamos Field Office, Los Alamos, AEC, cathodic protection, water supply tanks, Phase B, Inv. No. 291-55-2. $100,000.

▲† **Tex., Houston**—HOSPITAL, etc.—BA 2/8—Veterans Admin., Munitions Bldg., Wash. 25, D. C., addns., alterations to Veterans Admin. Hospital bldgs. and utilities, Proj. No. 42-5281 and 42-5283. $3,500,000. Wyatt C. Hedrick, 5201 Fannin St., engr.-archt. CD 8/5.

▲ **Colo., Fort Collins**—COURT HOUSE—BA 2/10—Bd. Comrs. Larimer Co., County Court House, court house, $1,000,000. Roland L. Linder, Insurance Bldg., Denver, archt. CD 10/6/53.

▲ **Ia., Des Moines**—SCHOOL—BA 2/23—Bd. Educ., 629 3 St., high school, $3,500,000, Wetherell & Harrison, 506 Shops Bldg., Des Moines, archts. CD 11/29/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **G. I. Johnson & Sons**, 848 W. 79 St., Minneapolis, Minn. CA $836,917. maintenance hangar, readiness hanger, Minneapolis-St. Paul International Airport, MINNEAPOLIS, MINN. U. S. Eng., 1709 Jackson St., Omaha 2, Neb. CD 12/29, under LB.

▲ **Western Contg. Corp.**, 400 Benson Bldg., Sioux City, Ia. CA $2,757,986. airfield pavement II, WICHITA, KAN. Boeing Airplane Co., Plant No. II, Personnel Bldg., Wichita, Kan. CD 12/29, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **C. S. Lambie & Co.**, Box 1167, Amarillo, Tex. CA $1,331,732, OFFICE, AMARILLO, TEX. Pioneer Natural Gas Co., 418 Polk St., Amarillo, Tex. Bids Dec. 8. CD 12/15, under LB.

▲ **T. L. Livingston Constr. Co.**, Carrollton, Tex., CA $1,033,835, 82 DWELLINGS, CARROLLTON, TEX. River Oaks Corp., Carrollton, Tex . CD 12/3 .

Centex Constr. Co., 4911 Greenville St., Dallas, Tex., Own Forces. $992,550, 85 DWELLINGS, in Sect. 2, DALLAS, TEX. CD 11/10.

Tips Investment Co., 701 Forest Ave. Rd., Dallas, Tex. Owner Builds. $280,000. WAREHOUSE, DALLAS, TEX. CD 12/29.

▲ **Arrington-Bradley Building Co., Inc.**, 7445 Park Pl. Blvd., Houston, Tex., CA $1,087,735, Group 4, 31 DWELLINGS; Group 5, 28 DWELLINGS; Group 6, 23 DWELLINGS, HOUSTON, TEX. Glenbrook Development Corp., c/o R. L. Bradley & Assocs., 7445 Park Pl. Blvd., Houston, Tex. CD 12/2.

C. O. Beeler, Builder, 4715 Calhoun St., Houston, Tex., CA $703,085, Group 3, 32 DWELLINGS; Group 4, 37 DWELLINGS, (outside limits), HOUSTON, TEX. C. O. Beeler, 4715 Calhoun St., Houston, Tex. CD 11/10.

Estate Builders, Inc., 30 Shady Lane, Houston, Tex. Owner Builds. $705,500, 42 DWELLINGS, near HOUSTON, TEX. CD 11/22.

Jersey Village Corp., 1318 Suebarnett St., Houston, Tex. Own Forces. $690,000; Lot 1, four masonry DWELLINGS. Lot 2, six DWELLINGS, HOUSTON, TEX. CD 10/19.

N. E. Kennedy & Son, 1st. Natl. Bank Bldg., Houston, Tex., CA $666,195, Group 1, six all-masonry DWELLINGS; Group 2, five all-masonry DWELLINGS, 15 mi. out from HOUSTON, TEX. Jersey Village Development Co., c/o N. E. Kennedy & Assocs., 1st. Natl. Bank Bldg., Houston, Tex. CD 11/15.

Sterling Hogan, Sr. & Oscar Holcombe, 1st Natl. Bank Bldg., Houston, Tex., Purchase and Hire. $642,500, 57 DWELLINGS, areas of Deer Park, HOUSTON, TEX. CD 8/4.

▲ **The Western Co.**, c/o Charles Broesche, 4705 Maple St., Houston, Tex. Owner Builds. $1,049,600. 42 DWELLINGS, HOUSTON, TEX. CD 11/4.

V. & N. Constr. Co., Box 834, Lubbock, Tex., CA $597,787, JUNIOR HIGH SCHOOL, LEVELLAND, TEX. Levelland Independent School Dist., Levelland, Tex. Bids Dec. 16. CD 12/29, under LB.

▲ **Brown & Root, Inc.**, Box 3, Houston, Tex., CA $15,000,000. design and construct, Third Unit of Newspaper PULP MILL, LUFKIN, TEX. Southland Paper Mills, Inc., c/o E. Kurth, mgr., Lufkin, Tex. CD 12/10.

I. S. Fonville, 8231 San Fernando Hy., Dallas, Tex. Own Forces. $638,350, (A) 31 DWELLINGS; (B) 22 DWELLINGS, MESQUITE, TEX. CD 12/1.

Marvin Henry Builders, Inc., 2002 Chippendale St., Houston, Tex. Owner Builds. $639,500 (D) 28 DWELLINGS (E) 36 DWELLINGS, PASADENA, TEX. CD 7/29.

Blagden Manning Constr. Div., 4332 Beverly St., Dallas, Tex., CA $695,000, 39 frame DWELLINGS; 22 masonry DWELLINGS, RICHARDSON, TEX. Blagden Manning & Assocs., 4332 Beverly St., Dallas, Tex. CD 10/1.

Rosenthal Brothers, Contractors, 2501 Vance-Jackson Rd., San Antonio, Tex. Own Forces. $648,500, 22 brick DWELLINGS; 18 masonry DWELLINGS, SAN ANTONIO, TEX. CD 9/8.

Edgar Von Scheele & Co., 2015 San Pedro Ave., San Antonio, Tex. Own Forces. $666,625, 19 brick veneer DWELLINGS; 23 masonry DWELLINGS, SAN ANTONIO, TEX. CD 9/17.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
January 27 California
STREETS AND ROADS
January 26, 27 California

BIDS ASKED—BUILDINGS

▲ **Calif., Oakland**—OUTPATIENT—BA 2/15—Alameda Co., Cort House, outpatient bldg. at Highland Hospital. $1,600,000. Plans deposit $25. Corlett & Anderson, Bank of America Bldg., archts. CD 1/22.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Lembke-Clough & King**, Box 1391, Las Vegas, Nev., CA $1,023,616, super-sonic military air research track, Virgin City, Washington Co., UTAH. Dpt. Air Force, The Pentagon, Wash. 25, D. C. Bids Dec. 21. CD 1/4, under LB.

▲ **Engineers Limited Pipe Line Co.**, Securities Bldg., Seattle 1, Wash., CA, $2,750,000. 27.5 mi. southward extension of the Company's 20-in. spur line from Laurel to Burlington plus 9 mi. 16-in. lateral line to be connected to new Shell Oil Company Refinery, near Anacortes, WASHINGTON. Trans Mountain Oil Pipe Line Corp., 400 E. Broadway, Vancouver 10, B. C.

▲ **Connolly-Pacific Co.**, 1925 Water St., Long Beach, Calif., LB, $2,255,045, Unit 2, Los Alamitos Bay Marina, LONG BEACH, CALIF. City, City Hall, Long Beach, Calif. Bids Dec. 30. CD 12/22.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Utah Constr. Co.**, 100 Bush St., San Francisco 4, Calif. Owner Builds. $75,000,000, HOUSING DEVELOPMENT along south shore tidelands, incl. 36,000,000 cu. yd. fill, ALAMEDA, CALIF. CD 2/23.

▲ **McDonald Bros.**, 2620 N. Rosemead Blvd., El Monte, Calif., CA $1,446,200, 175 frame, stucco DWELLINGS, Hollyvale and Glenlyn Sts. and Trymore Ave., AZUSA, CALIF. Azusa Highlands, 2620 N. Rosemead Blvd., El Monte, Calif.

Avocado Land Co., 343 Hawthorne Way, Hawthorne, Calif., CA $950,000, 78 frame, stucco dwellings, Avocado and Vernon Aves., HAWTHORNE, CALIF. Hukee Land Co. 343 Hawthorne Way, Hawthorne, Calif.

▲ **Linde Corp.**, 511 N. La Cienega St., Los Angeles, Calif., CA $1,200,000. 120 frame, stucco DWELLINGS, Athlone and Reid Sts., HAWTHORNE, CALIF. Clarendon-Saxonwald, 511 N. La Cienega St., Los Angeles, Calif.

▲ **Jacmar Groves, Inc.**, Box 8155, Long Beach, Calif., CA $1,123,000 131 frame, stucco DWELLINGS, Dashwood and Dollar Sts., LAKEWOOD, CALIF. Argo Constr. Co., Aztec Constr. Co., Buster Constr. Co., Box 8115, Long Beach, Calif. Paul J. Duncan, 13310 Moorpark St., Sherman Oaks, archt.

▲ **Myers Brothers**, 3707 San Fernando Rd., Los Angeles, Calif., CA, $2,500,000. 1,000 student COLLEGE, LA MIRADA, CALIF. Bible Institute of Los Angeles, 558 S. Hope St., Los Angeles, Calif. William C. Ulrich, c/o contractor, archt.

CANADA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Dell Constr. Co. Ltd., 2461 Bloor St. W., Toronto, Ont., CA, $645,755, 100x125 ft. drill hall and 50x110 ft. theatre, 50x175 ft. lounges, 57x110 ft. swimming pool, R.C.A.F. Station, Downsview, TORONTO, ONT. Defence Constr. Ltd., 25 Lyon St., Ottawa, Ont. Bids Nov. 4, awarded Dec. 23. CD 10/13.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Ben Seaton**, 45 Wembley Rd., Toronto, Ont., Owner Builds, $1,000,000 123-suite APARTMENT, 494 Avenue Rd., TORONTO, ONT. CD 11/17.

Anglin-Norcross Quebec Ltd., 892 W. Sherbrooke St., Montreal, Que., CA, $800,000. SHOPPING CENTER, Victoria and Van Horne Aves., MONTREAL, QUE. Van Shopping Center, 565 Queen Mary Rd., Montreal, Que. Elizasoph & Assocs., 1434 W. Ste. Catherine St., Montreal, Que., archts.

▲ **Main Constr. Co., Ltd.**, 4535 City Hall Ave., Montreal, Que., CA, $2,000,000, HOUSING DEVELOPMENT in Gouin Blvd. Area, MONTREAL NORTH, QUE. Vogue Development Regt., 1178 Philips Pl., Montreal, Que. CD 12/22.

▲ **Commercial Leaseholds Ltd.**, 299 Main St., Hamilton, Ont., CA, Est. $1,000,000, 1 story, 197x377 ft., concrete, steel. soft drink and syrup PLANT, MOUNT ROYAL, QUE. Cott Beverage of Canada Ltd., 4060 St. Lawrence Blvd., Montreal, Que. CD 12/29, under Que., Montreal.

▲ **McCallum Hill & Co., Ltd.**, McCallum Hill Bldg., Regina, Sask. Owner Builds. $3,000,000 HOUSING DEVELOPMENT, 23 and 25 Aves., REGINA, SASK. CD 1/5.

AMERICANS ABROAD

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **Frederick Snare Corp.**, 233 Broadway, New York 7, N. Y. CA $2,068,716, 100-bed HOSPITAL, U. S. Naval Hospital, U. S. Naval Base, NOY 81050, GUANTANAMO BAY, CUBA. P. Wks. Office, 10th Naval Dist., Navy No. 116, c/o Fleet P. O. New York, N. Y. Bids Nov. 23. CD 10/14.

(Proposal Advertisements see pp. 86 & 87)

FINANCIAL AID TO HIGHER EDUCATION

Business Aid for Our Colleges—Voluntary or Involuntary?

Previous editorials in this series have shown that:

- As a group the nation's independent, privately endowed colleges and universities are in grave financial trouble, and
- There are many different means by which business firms can extend a helping hand to these institutions.

This editorial, one of a series devoted to the financial problems of higher education, submits this proposition: **If business firms do not voluntarily go to the financial aid of higher education, there is every prospect that they will soon be providing more financial support for higher education involuntarily, through taxation.**

If this prospect materializes, one of the basic elements of a well-balanced system of higher education—a strong array of independent colleges and universities—may well be dangerously weakened if not destroyed. And in the process a potentially crucial bulwark for freedom of enterprise in the United States—that same strong array of independent colleges and universities—will be undermined.

Acceptance of these propositions implies absolutely no disparagement of tax-supported colleges and universities. These have an indispensable role in the total system of higher education in the United States. Leaders of these institutions would be among the first to agree that their position is strengthened by a strong system of independent institutions, supported privately rather than by political agencies.

What is the evidence that in one way or another, voluntarily or involuntarily, business will be giving more financial support to higher education? One impressive part of this evidence is provided by the recent rapid increase in the proportion of college and university students attending tax-supported institutions.

Rapid Shift in Enrollment

In the fall of 1952 tax-supported colleges and universities enrolled about 7.5 per cent more students than the independent institutions. In 1953 this percentage was doubled. And in 1954 the tax-supported institutions enrolled 26 per cent more students.

In the case of students entering college for the first time the relative growth of the tax-supported institutions recently has been even more striking. In 1952, the number of beginning students in the tax-supported schools, as reported by the U. S. Office of Education, exceeded those in the independent colleges and universities by 35 per cent. In 1954, just two years later, this figure jumped to 49 per cent.

Why has the proportion of students attending tax-supported colleges and universities been in-

creasing so rapidly? There are many reasons. But a dominant reason is that, in order to keep going at all, the independent institutions have been forced to make large increases in the prices they charge for instruction. The purchasing power of their endowment funds has been cut in half by price inflation. The capacity of the wealthy to supplement their endowments by gifts, as they have done in the past, has been greatly reduced by high taxes. As a result these schools have been forced to rely increasingly on higher prices for instruction (tuition as it is called in academic circles) to make both ends meet.

Since 1940, the independent colleges and universities have raised their tuition fees by an average of about 60 per cent. This is considerably less than the increase of about 100 per cent in prices generally since 1940. And it is nowhere near enough to prevent the faculty members of the independent colleges from faring miserably in terms of salaries, a matter of major national importance to which we shall return in this series. But the increase in tuition fees of the independent colleges has been much greater than the increase in the fees charged by the tax-supported schools. And that price differential increasingly tends to shunt students into the schools which are supported chiefly by taxes. Independent colleges now charge, on the average, about $580 per year for a full course of instruction while the tax-supported institutions charge, on the average, about $240.

Bigger Tax Bill in Prospect

A large increase in the total enrollment in our colleges and universities during the next decade is in prospect, particularly when the great increase in births during World War II is reflected in the number of young men and women of college age. With a total of 2.5 million students at present enrolled in our institutions of higher learning, it is estimated that the total will be over 3 million by 1960.

If this trend continues most of the anticipated increase in college and university enrollment will be concentrated in tax-supported institutions. Indeed, if the shift toward tax-supported institutions that has occurred in the last three years were to continue over the next six years at the same rate, about two million of the three million students anticipated in 1960 would be in tax-supported colleges and universities and one million in independent schools. In 1950 there was a 50-50 division in enrollment. This shift would mean, of course, a corresponding increase in the tax bill for tax-supported education. And of this bill, we can be sure that an ample share would be assessed against business firms.

No Easy Solution

The best way, of course, to put a brake on a soaring tax bill for higher education is to help the independent institutions get in shape financially to carry a larger share of the student load. For most companies the development of a mutually satisfactory program of financial aid for higher education is a complicated process. In fact, it is so complicated that some companies with an initial disposition to provide financial help are inclined to despair of working out a mutually constructive plan.

If, however, the leaders of business will contemplate seriously the only available alternative to their extending voluntary help to our independent colleges and universities, their determination to work out a plan will be strengthened. For that alternative involves a grave weakening of our system of higher education, together with an involuntary increase in the financial support of higher education by business. The increase would come through higher taxes. Contemplation of such an alternative should, if necessary, toughen the will of business firms generally to do everything possible to extend financial help to our independent colleges and universities.

This message is one of a series prepared by the McGraw-Hill Department of Economics to help increase public knowledge and understanding of important nationwide developments that are of particular concern to the business and professional community served by our industrial and technical publications.

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Highway Maintenance Cost

Two states, Pennsylvania and Minnesota, that have put their fact finders on maintenance costs to find out where the maintenance dollar goes, have come up with useful answers.

• **Pennsylvania's** cost per mile is up only 24% since 1930-31 even though labor costs have soared by 206% in this same period. C. N. Smith, Cost Engineer, credits mechanization wherever possible, improved methods of operation and management, and, on surface treatment, improved materials and methods which have increased the treatment cycle from three to six years.

Pennsylvania's investment in maintenance in 1953-54 was $32 million, 5.6% of all state highway maintenance, 1.8% of the nation's $1.75 billion estimate for all classes of roads.

How costs per mile are running on various types of surfaces is reported for Pennsylvania in the following table.

Highway Maintenance Costs

	1940-41	1950-51	1951-52	1952-53	1953-54
		Cost Per Mile*			
Average, State Highway System		$737.00	$757.00	$754.00	$783.00
Wage rates, per hour		1.04	1.12	1.22	1.23
* Includes snow removal, cindering and other winter services. † Excludes					
By Type, Primary system		Cost Per Mile†—Surface Costs Only			
Unimproved Earth	$66.29	$130.13	$98.70	$109.55	$52.60
Stabilized Stone, Slag, Gravel	76.82	108.94	127.30	107.84	96.16
Light Type Flexible (Macadam)	123.97	224.37	215.41	176.27	222.20
High Type Flexible (Macadam)	122.11	252.15	221.37	200.93	221.51
Rigid (Concrete)	87.82	314.24	446.85	539.11	519.64
By Type, Secondary rural system					
Unimproved Earth	$70.86	$116.12	$86.99	$88.51	$99.04
Stabilized Stone, Slag, Gravel	73.15	122.74	109.23	109.70	99.28
Light Type Flexible (Macadam)	94.96	169.67	178.50	164.88	187.63
High Type Flexible (Macadam)	88.67	136.00	145.27	152.92	151.49
Rigid (Concrete)	67.32	108.64	289.98	288.28	212.49

Macadam pavement surface treatment costs not shown. These run, per mile: on primary system, $250; on secondary system, $200.

• **Minnesota**

Rise in Surface Maintenance Cost

By miles, by square yards, by daily traffic

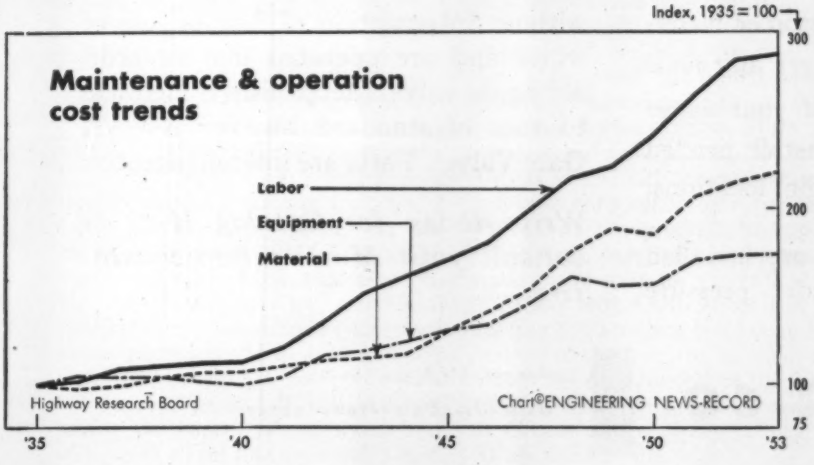
Item	1935	1953	% increase
Total expenditure	$2.0 million	$6.4 million	220
Mileage maintained	10,000 miles	12,000 miles	20
Cost per mile	$200	$533	166
Average width	18 ft	20 ft	11
Cost per 10,000 sq yd	$189	$454	140
Average daily traffic	500	1,000	100
Cost per daily vehicle	$0.40	$0.533	33

In a special report on surface maintenance costs, C. L. Motl, state maintenance engineer for Minnesota, suggested to the American Association of State Highway Officials that a unit of 10,000 sq yds be used to measure cost trends, rather than miles. H. A. Radzikowski, Chairman, Highway Research Board's Committee on Maintenance Costs, reports that others have suggested measuring surface-maintenance costs in terms of the traffic carried on the road.

All three methods are compared in the accompanying table showing the increase in surface maintenance costs from 1935 to 1953: 166% per mile, 140% per 10,000 sq yd, 33% per daily vehicle.

• **Highway Research Board**

Cost trends for highway maintenance and operation are up 138% since 1935 according to the Highway Research Board index. Labor is up 187%, material 74%, equipment 121%, overhead 112%.



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Construction Money Gets a Little Bit Tighter

Federal Reserve hardens loan money somewhat. But this policy change will not affect needed construction jobs

As the new year begins, there are signs that money for construction will be a little harder to borrow.

For one thing, the Federal Reserve Board, which can ease or tighten the money supply and thus affect interest rates, is taking note of the general upturn in business and the spectacular stock market boom.

From now on, unless business turns down again, FRB is going to make things just a little bit tougher for borrowers. Since mid-1953, it has followed a policy of "active ease" to give commercial banks plenty of extra lending power. That has not only made bank rates lower, but has lowered money rates in the bond and mortgage markets, where most construction is financed.

• **FRB's change**—But now business is picking up. This has been true for months in homebuilding, and more recently in auto production. So FRB has made it clear that it will be somewhat less generous about providing extra lending power to the banks. However, if business activity turns down again this spring or summer, FRB's policy ean be expected to return to "active ease."

FRB's change in policy will have little effect on the great majority of construction projects. For most borrowers, a few hundredths of a percent in interest cost will make practically no difference. Certainly the Federal Reserve Board and the Administration are not going to do anything to block needed projects. But the board's well-advertised action is going to make investment bankers and investors just a bit more cautious.

• **Pru borrows**—The other portent that indicates construction money is going to be a little harder to find is the king-sized "warehousing" arrangement that Prudential Insurance Co., No. 2 U. S. life insurance carrier, has just made with a group of 154 banks. The banks will make $350 million available to Prudential for additional purchases of government-guaranteed home mortgages. As security, Pru will deposit FHA and VA mortgages with the lending banks. It will start repaying the loan in about a year and will pay it all off in a year and a half.

This seems to be the biggest "warehousing" deal ever made, and is apparently the first entered into by a big life insurance company. It shows that at least one top-ranking institutional investor is starting to run out of funds to make mortgage loans.

• **Bond market**—In other sectors of the long-term money market, things are fairly easy, though not as easy as they have been in the past few months. Though municipal bond prices are now somewhat lower (and interest rates higher) than they were this fall, the municipal market is still quite strong. The wonder is that it was able to absorb such a huge amount of new issues this year and still finish off with prices distinctly higher than when the year began.

A year-end compilation by the Wall Street investment house of Hemphill, Noyes & Co. shows that a record volume of almost $6.8 billion in new tax-exempt bonds was issued in 1954, more than $1.2 billion above 1953. Of the total, about $3.6 billion were backed by taxes and $3.2 billion were revenue bonds. All of the gain came from revenue bonds: The gain in revenue issues was more than $1.6 billion, but there were about $400 million less tax-supported bonds.

• **Toll roads**—Of these revenue issues about $1.5 billion were for toll roads. And at least another $700 million more of new toll-road issues could be offered to the market within the next few weeks. This year could be a bigger year for toll-road financing than 1954, but much will depend on what arrangements are made in the President's proposed $26-billion program for federal financing of the 40,000-mi interstate system. Nearly all the feasible toll-road mileage is in this system. Unless states with privately financed toll roads get some form of credit from the $26-billion program to apply to other roads, construction of future toll roads would seem to be pointless.

At any rate, Connecticut will offer another $100-million bond issue to investors next week, to provide more money for construction of the 129-mi toll road from the New York state line at Greenwich to Killingly, near the Rhode Island line.

State Highway Commissioner G. Albert Hill says that land acquisition and engineering design for the expressway has proceeded much faster than the original schedule. That means proceeds of the $100-million issue sold last May will be fully committed by the time the new issue is placed. Total cost of the highway is estimated around $398 million.

The Texas Turnpike Authority plans to sell a $58.5-million bond issue to build a Dallas-Ft. Worth toll road.

But the biggest toll financing of all, the $390-million Illinois Turnpike financing which was originally scheduled for next week, now seems likely to be postponed for several months by a property-owner's lawsuit. Evan Howell, chairman of the Illinois Toll Road Commission, says he doesn't "see how we can get loose to offer the bonds before May."

$56 Billion of 1955 Work? That's AGC's Forecast

Dollar volume of construction—including work put in place and maintenance and repair—may reach $56 billion in the continental U. S. in 1955. That's the estimate of the Associated General Contractors of America, Inc. This would be a jump of $4 billion from AGC-Dept. of Commerce estimates for 1954.

The $56-billion figure is made up of $40 billion for new construction, and about $16 billion for maintenance and repair. In addition to a record-breaking volume in the U. S., federal construction outside the country is expected to approach $1 billion.

Estimates of $37 billion worth of construction put in place during 1954, plus about $15 billion for maintenance and repair, means that about one dollar in every seven spent for goods and services went for construction in 1954. That compares with one in every eight in 1953.

AGC estimates that direct construction employment in 1954 was 4.6 million, and that total employment in all fields connected with construction was 9.4 million, over 17% of all full-time workers. It also figures that for every five workers at the site of new construction, six are employed in activities servicing it. For maintenance and repair, the ratio may be about seven off-site workers for every 10 workers at the site.

(B&F continued on page 80)

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Ohio Turnpike No. 2

Final study authorized on north-south route

State Highway Director Samuel O. Linzell has secured state funds to make a final study of the proposed north-south turnpike from Cincinnati to Conneaut in the northeastern corner of the state. There also might be a spur from Columbus to Toledo.

A preliminary study of the project, conducted by the civil engineering firm of J. E. Greiner Co. and traffic engineers Coverdale & Colpitts, found that it was not financially feasible. But now Linzell believes that conditions have changed enough to make a final study.

For one thing, Linzell notes that J. E. Greiner has reduced its construction cost estimates by about $60 million, based on a downward trend in turnpike construction costs. Original estimates were about $525 million. This could mean a reduction of $2 million in interest cost.

Furthermore, it has become apparent that the project's first full year of operation would have to be 1959, instead of 1958, as was assumed originally in the preliminary study. This could mean estimated first-year revenue would be boosted $1 million.

With interest charges down $2 million and first-year revenue up $1 million, revenue available for debt service in the first year would rise from 1.1 times debt charges (the ratio indicated by the preliminary survey) to about 1.35. This would make a bond issue a great deal easier to sell.

Studies have shown that substantial sections of the project are already feasible for revenue-bond financing. But Ohio law requires that each separate toll road project must stand on its own feet financially, and not depend on the revenues of other toll roads. That's why Ohio officials have been anxious to bring the whole 410-mi project along as a unit. If the weaker sections had been dropped now, they would have to be financed later as a separate project (or projects). This would mean that they would be delayed for years.

Construction Statistics To Be Under One Cover

Starting this month, the federal government's two monthly publications of construction statistics will be consolidated into a single periodical, to be called "Construction Review."

The two merging publications are the Commerce Department's "Construction and Building Materials" and the Labor Department's "Construction." Although related news releases from different federal departments have previously been consolidated, this new joint publication is considered to be unique.

Purpose of the merger, of course, is to give better and more efficient service to everyone interested in the construction industry. It will bring together under one cover nearly all of the construction statistics currently being compiled by the federal government. Some information from non-governmental sources also will be included. "Construction Review" will contain articles on specific aspects of construction, including interpretation of trends in activity, the business outlook, and reports on special studies.

The new periodical will be available at $3.00 a year (12 issues) or at 30 cents a copy from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., or from any of the field offices of the Department of Commerce.

Porcelain Enamel Is Booming

Use of porcelain on building exteriors is booming, according to Seaporcel Metals, Inc., which makes architectural porcelain enamel. M. Jesee Salton, company president, says his concern got so many orders in the last quarter of 1954 that it should "operate full tilt" through the next 12 months. Salton says orders are coming in from points as far away as Alaska and Latin America.

Blaw-Knox to Reshuffle Its Many-Sided Production Lines

Blaw-Knox Co., of Pittsburgh, is planning an extensive expansion and modernization program to integrate production of several of its lines.

Making of roadbuilding equipment will be concentrated in a new plant scheduled for completion this year at Mattoon, Ill. This equipment is produced now in three widely scattered plants.

Facilities at Blawnox, Pa., will be improved. At this plant, the company now makes industrial gratings, power transmission equipment, clamshell buckets, radio and TV towers, steel plant equipment and other products.

Process equipment, now manufactured at several plants, will be concentrated at the Buflovac Equipment Division in Buffalo, N. Y. Dairy equipment facilities will be centered at Moore, Minn. Blaw-Knox also plans a centralized research and development program.

Westchester Weighs Future Of Its Outmoded Parkways

Highway construction men in the New York area are waiting for the publication of an engineers' report on Westchester's outmoded parkway system, originally scheduled for delivery on Nov. 1. The report will concern the county's Hutchinson River Parkway, Cross County Parkway, and part of the Saw Mill River Parkway, all of which form a corridor from New York City and New England.

Reports are that the engineers will propose a $50-million construction program. But there is some difference of opinion as to how much traffic will use these Westchester parkways in the next 15 years. For one thing, the New York Thruway soon will be running through part of the county. And there are new superhighways proposed.

According to county executive James D. Hopkins, Westchester can adopt one of several different solutions. It could turn the whole problem over to New York State—which could perhaps use federal money to modernize the parkways under Eisenhower's $26-billion program for the interstate system. It could ask for a Westchester parkway authority, which could finance the new construction out of toll revenue bonds. Or it could eliminate the authority and put its general credit behind a bond issue, in addition to tolls. And it could do the job piecemeal over a long period through general tax funds.

Contrary to some reports the parkway system is not a gold mine to the county. The tolls do not provide anything extra to the general fund. The county's out-of-pocket costs of maintenance, operation, and debt service exceed revenues from the parkways.

Commercial Work Shows Gain in Revised Figures

While ENR's forecast for commercial building in 1955 remains unchanged, the $1.5-billion figure published in last week's issue will represent a 7% increase over 1954 instead of the 2% dip that was indicated.

The difference comes about by eliminating from the 1954 figures a shopping center project in Kansas City, Mo., which was erroneously reported to cost $130 million. A corrected figure on the project will be published when a field re-check is completed. ENR statistics will show this change in the summary table in the Feb. 17 annual review issue.

(B&F continued on page 82)

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BUSINESS AND FINANCE

Business Briefs . . .

• **Utilities expand**—Consumers Power Co., Jackson, Mich., plans a $75-million construction program this year, including a new office building and additions to plants. Consolidated Gas, Electric Light & Power Co. of Baltimore plans a record-breaking $35-million construction program for this year.

• **Industrial expansion**—Tide Water Associated Oil Co. will spend a record $127 million this year, about half for a major refinery near Wilmington, Del. Libby-Owens-Ford Glass Co. will spend $25 million on expanding plate glass production.

• **More industrial spending**—Koppers Co., Inc., will boost capital spending 20% this year with its $20-million budget. Chrysler Corp. has started work on a $20-million plant.

• **More building materials**—Allied Chemical & Dye Corp.'s Barrett Division has purchased a 350,000 sq ft plant at Sunbury, Pa., where it plans to set up operations for the manufacture of roofing, insulation, wallboard, and other building materials.

• **British contractor buys into Canadian firm**—Holland and Hannen and Cubitts Ltd., London general contractors, have acquired controlling interest in the Montreal firm of Anglin Norcross Corp., Ltd. This is the latest of several such moves by British contractors into the Canadian field, following relaxation of government regulations on capital leaving Great Britain.

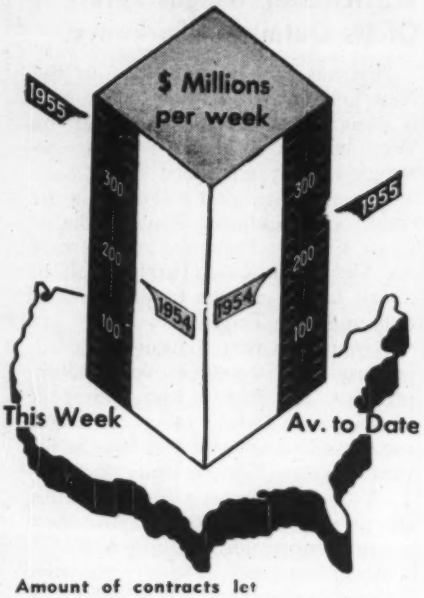
• **Two more in plastic pipe**—Continental Can Co., of New York, has purchased Tenco, Inc., of Winona, Minn., maker of plastic pipe fittings. and M&M Woodworking Co.'s National Tank & Pipe Division will start making plastic pipe about March 15 of this year.

• **Cement merger**—Ideal Cement Co., Denver, plans to acquire Superior Portland Cement, Inc., of Seattle. This would add 2¾ million bbl. to Ideal's present 21½-million annual capacity.

• **Levitt boosts home prices**—Levitt & Sons, Inc., has boosted by $500 the price of new three-bedroom, two-bath units at Levittown, Pa., bringing the price to $17,500. Levitt recently boosted prices of two smaller models by $250.

Activity This Week

As reported to ENR
(In millions of dollars)



Amount of contracts let

	This Week	Cumulative 2 wks 1955	1954	% chge
Federal	$27.8	$125.7	$33.5	+275
State and municipal	87.8	171.9	219.6	−22
Total public	115.6	297.6	253.1	+18
Total private	249.1	482.0	168.6	+186
U. S. total	$364.7	$779.6	$421.7	+85

Contracts by type of work

Waterworks	$8.6	$14.8	$10.0	+48
Sewerage	4.4	15.1	8.4	+80
Bridges	18.1	25.9	22.4	+16
Highways	33.9	73.5	81.6	−10
Earthwork, waterways	4.1	10.7	24.9	−57
Buildings:				
Public, excl. hsg.	24.3	106.5	82.9	+28
Housg., public	0.0	0.6	10.5	−94
Housg., private	132.5	235.3	90.4	+160
Commercial	29.4	47.1	39.3	+20
Industrial	82.3	189.9	33.0	+475
Unclassified	27.1	60.2	18.3	+229
Total	$364.7	$779.6	$421.7	+85

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $44,000.

New capital for construction

(millions of dollars)

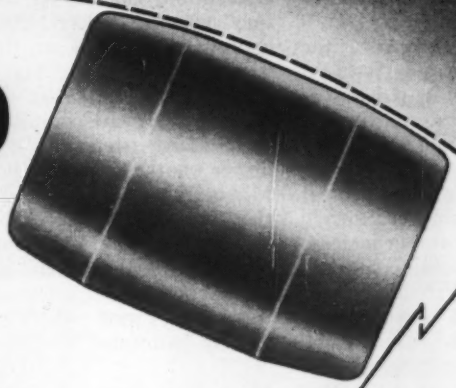
	Week of Jan. 6 1955	Cumulative 1 wk 1955	% chge '54-'55
Corporate securities	$6.9	$6.9	−87
State and municipal:			
All except housing	20.1	20.1	+23
Housing	3.4	3.4	+278
Federal loans	1.9	1.9	−39
Federal aid	...	...	...
Total non-federal	$32.3	$32.3	−55
Federal appropriations:			
In U. S.	...	...	...
Outside U. S.	...	...	...
Total new capital	$32.2	$32.3	−55

ENR cost and volume indexes, 1955

		Base years = 100 1913	1926	1949
Construction cost	1/6/55	645.23	310.16	135.26
	12/30/54*	644.32	309.72	135.07
Building cost	1/6/55	458.82	248.03	130.42
	12/30/54*	457.91	247.53	130.17
Volume	Dec.	464†	189†	134†
	Nov.	522	212	151

* Official ENR index for Jan. 1
† Revised

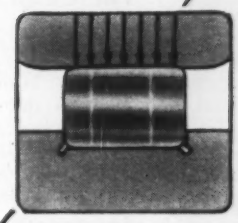
NOW... all Tru-Rol Bearings *have* CROWNED ROLLERS



● When a straight cylindrical roller bearing is under load, the highest stresses tend to concentrate at the roller ends. Stresses may become excessive and cause early bearing failure.

Crowning is a Rollway grinding refinement that adds a long radius curve to the roller ends. This relieves the high stress areas — allows the rollers to take heavier loads and reduces the effect of slight shaft misalignment or deflection. Bearings can be load rated at substantially higher values — provide a longer service life.

Crowning is but one of the many engineering advances built into Rollway Tru-Rol Bearings. Write for the complete story. Rollway Bearing Co., Inc., Syracuse, N.Y.



Crowned roller under full load — stress uniformly distributed.

Crowned Tru-Rol Bearings available in the following type:

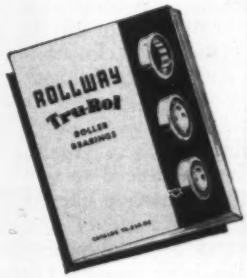
Full Roller

Segmented Steel Retainer

Carefully selected crown radius, varying from 20" to 260", provides proper relief for normal loading to which bearing will be subjected.

+

Stamped Steel Retainer with Guide Lips



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Labor Cool to President's Message

Organized labor found little to cheer about last week in the President's State of the Union Message.

To both the CIO and AFL, the proposed minimum wage increase, expected to become the most active issue of all, was welcome but "inadequate." Both have plugged for $1.25 but would settle for $1.00. Sen. H. Alexander Smith, outgoing chairman of the Senate Labor Committee, already has prepared legislation for an increase to 90 cents. He hopefully suggests leaving the question of extended coverage as a "separable issue" for later consideration. To many key Democrats, the 90-cent figure seems low. Lister Hill, Smith's successor as committee chairman, sees merit in an increase but Graham Barden, his counterpart in the House, doesn't favor a change.

Proposals relating to occupational safety and the eight-hour law were merely mentioned. Administration views will be presented later.

The Taft-Hartley recommendations were the same as those submitted last year. It is doubtful that the 84th Congress will tinker with the law at all. Even the Democrats are divided on their views for revision.

As was indicated at the last CIO convention, labor looks for a "status quo" on the federal level and will concentrate, instead, on the state legislatures—where the big issues are right-to-work legislation and changes in unemployment compensation laws.

To a large extent, this is what Eisenhower wants. He and Labor Secretary Mitchell have long urged action on the state level wherever possible. In his message, the President again asserted that "the federal government should perform an essential task only when it cannot otherwise be adequately performed."

New Five-Year Agreement For Carpenters in N.Y.

In a radical departure from their usual one-year agreements, carpenters in New York State have agreed to a five-year state-wide contract for heavy construction, including highways, piers and bridges.

The new contract, effective Jan. 1, spreads a 25-cent increase over the first three years, with rate carry-overs on work bid in 1955 and 1956. Reopening clauses, effective at the end of three years and again in 1958, are applicable to wage rates but not conditions. There are no provisions for travel pay, welfare or guaranteed work week.

For most areas, the progressive rate will raise the 1954 rate of $2.90 to $3.15 on Jan. 1, 1957. In the St. Lawrence area, the 1957 scale will be $3.20—the difference to allow for boom prices expected in that area.

According to Charles Johnson, representative of the national union, and head of the New York City area carpenters district council, the five-year plan was accepted "in order to stabilize heavy construction and heavy industry in the state." Extension of the termination date was of particular importance to the AGC, whose Labor Relations Division represented the employers, because of the vast amount of construction ahead on the St. Lawrence Seaway and Power projects.

The agreement affects 15,000 members of the carpenters union. It covers 40 counties and excludes Erie, Niagara and metropolitan New York counties.

1955 Construction Rates for TVA

Craft	Old rate	New rate	Increase
Bricklayers	$3.10	$3.15	$.05
Electricians	2.875	3.00	.125
Plumbers and steamfitters	2.90	3.00	.10
Boilermakers	2.90	2.975	.075
Plasterers	2.825	2.876	.051
Iron workers	2.775	2.85	.075
Operating engineers	2.725	2.85	.125
Sheet metal workers	2.625	2.725	.10
Lathers	2.65	2.70	.05
Machinists	2.55	2.65	.10
Painters	2.50	2.575	.075
Carpenters	2.475	2.55	.075
Roofers	2.075	2.125	.05
Teamsters	1.975	2.025	.05
Laborers	1.375	1.425	.05

Here are the new wage rates established by agreements negotiated at the 20th annual wage conference between the Tennessee Valley Authority and the Tennessee Valley Trades and Labor Council. The new increases range from 5 to 12½ cents an hour and cover 9,000 TVA construction workers. According to Aubrey J. Wagner, TVA general manager, they "reflect increases negotiated between private employers and unions in the eight-state TVA region during the past 12 months." AGC's Knoxville chapter immediately entered a protest and requested a prompt hearing from Labor Secretary Mitchell. Long an opponent of the TVA labor policies, AGC claims TVA has violated the law "by negotiating directly with representatives of various unions for establishment of labor scales in excess of prevailing rates, for which TVA has no legal authority whatsoever." The law requires TVA to pay prevailing rates in its eight-state area. AGC claims only two rates meet the test.

Labor Briefs . . .

• **Jurisdictional dispute**—Construction of the $12-million Military Personnel Records Office at Overland, Mo., gave rise to a dispute now headed for the Joint Board for Settlement of Jurisdictional Disputes. Sheet metal workers are objecting to installation by carpenters of hollow metal used in doorframes and transoms. General contractors Peter Kiewitz & Sons Co. and Fruin-Colnon Contracting Co. expect an early settlement.

• **A good year**—The U.S. Department of Labor has reported that labor relations has just completed its most peaceful year since World War II. It estimated 3,450 strikes were started in 1954—idling 1.5 million workers for 22 million man-days.

• **Profit sharing**—Catalytic Construction Co., Philadelphia, has adopted a profit-sharing retirement plan for its employes. The plan is non-contributory and initially covers 400 office and field employes.

• **Plumbing trouble**—A Pasco, Wash., plumber claims he was forced to suspend operations because of an alleged conspiracy between a local of the plumbers union and three plumbing firms to cut off his labor supply. He has filed a $200,000 suit in federal district court.

OFFICIAL PROPOSALS

APPEAR HERE EACH THURSDAY. PROPOSAL ADVERTISEMENTS ACCEPTED UP TO 10:30 A.M. FRIDAY FOR THE ISSUE DATED THE FOLLOWING THURSDAY. (Except for earlier holiday closing)

Bids: February 1, 1955

Construction of Passenger Station

Construction of a two story passenger station, steel canopy and shelter building, located in the Borough of Dunellen, County of Middlesex, New Jersey, in connection with the Dunellen-Plainfield Grade Crossing Elimination Project, under Order of the Board of Public Utility Commissioners, State of New Jersey

Sealed proposals for the construction of a two story masonry, steel and reinforced concrete passenger station (22'x57'), steel canopy (18'x146'), and shelter building (15'x 42'), adjacent to track elevation work now in progress, will be received by The Central Railroad Company of New Jersey, at the office of the Chief Engineer of the Railroad, located at Jersey City Terminal, Room 44, Foot of Johnston Avenue, Jersey City, N. J., until 1:00 PM EST, Tuesday, February 1, 1955, and then be publicly opened and read.

Proposal forms, drawings, specifications, bond and insurance requirements may be obtained at the office of the Chief Engineer of The Central Railroad Company of New Jersey, at the above address, on or after Friday, January 14, 1955. Drawings and specifications may be obtained upon application at the office of the Chief Engineer on a deposit of Twenty-five Dollars ($25.00) per set. A refund in full will be made to bidders upon return of each set in good condition within 30 days of award or rejection of bids.

This work will be awarded as a general contract and the successful bidder will be required to perform with his own organization not less than 80% of the total value of the contract, except for materials or items of work which require specialized knowledge, craftsmanship, or equipment not ordinarily available in a contractor's organization.

Bids must be made upon the standard proposal forms furnished for this purpose by the Railroad Company and must be enclosed in sealed addressed envelopes bearing, on the outside, the name and address of the bidder and the identity of the contract work covered by the bid, and must be accompanied by a certified check drawn to the order of the Treasurer of The Central Railroad Company of New Jersey, in the amount of Ten Thousand Dollars ($10,000.). Bids and checks not enclosed in sealed addressed envelopes will be considered informal and will not be accepted.

The Railroad Company reserves the right to reject any or all proposals.

S. L. Mapes, Chief Engineer
The Central Railroad Company of New Jersey
Jersey City Terminal, Jersey City 2, New Jersey

Bids: March 9, 1955

Power Authority of the State of New York

FOR
CONSTRUCTION OF
LONG SAULT DAM
NEAR MASSENA, ST. LAWRENCE COUNTY, NEW YORK
SPECIFICATION NO. PA-5-11002
ST. LAWRENCE CONTRACT NO. 8

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the construction of Long Sault Dam and appurtenant works near Massena, St. Lawrence County, New York until 10:30 A.M. Eastern Standard Time on the 9th day of March, 1955 at the Authority's office, 270 Broadway, Room 1207A, New York 7, New York, at which time and place proposals will be publicly opened and read aloud.

The principal items of work are:

Estimated	
5,752,000 cu. yds.	Earth or rock excavation for Cut F and channel work
1,189,000 cu. yds.	Embankment and riprap for wing dams, dike and roads
300,000 cu. yds.	Earth excavation for dam
75,000 cu. yds.	Rock excavation for dam
700,000 cu. yds.	Borrow excavation
407,200 cu. yds.	Concrete
2,431 tons	Structural steel
5,809 tons	Erection of gates and cranes
76,000 lin. ft.	Drill holes for exploration and grouting

The work shall be completed on or before December 30, 1958.

Plans, specifications and Proposal Forms for the work will be on file after January 7, 1955 in the Authority's office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and the Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, and may be inspected by prospective bidders during office hours.

Plans, specifications and Proposal Forms may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York, after January 7, 1955 upon application and prepayment of a fee of Fifty ($50.00) dollars per initial set and Twenty-five ($25.00) dollars per set for additional sets no part of which will be refunded.

Bids must be made in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 10 percent of the gross sum bid except that guarantee in excess of $2,000,000 will not be required.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

Bids: February 1, 1955

New Jersey Turnpike Authority

CONTRACTS NOS. N-48A, N-48B, N-48C, N-48D and N-48E

Proposals are invited for the Contracts listed below; which involve the construction of ten (10) buildings, moving of materials and equipment from existing buildings to new or existing buildings, construction of two (2) septic tanks and a chlorine meter pit and a water meter pit and other incidental work at the U. S. Army's Caven Point Terminal, New York Port of Embarkation, Jersey City, New Jersey, all in connection with the construction of the Newark Bay-Hudson County Extension of the New Jersey Turnpike:

Contract No. N-48A	General Construction Work
Contract No. N-48B	Structural Steel and Miscellaneous Metal Work
Contract No. N-48C	Heating and Ventilating Work
Contract No. N-48D	Plumbing Work
Contract No. N-48E	Interior Electrical Work

Proposals will be received at the New Jersey Turnpike Authority Administration Building, New Brunswick, New Jersey, until 11:00 O'Clock, Eastern Standard Time on the morning of February 1, 1955, at which time and place said proposals will be publicly opened and read.

Bidders must submit with their proposal a Contractor's Financial and Equipment Statement.

Contract documents may be examined during office hours after January 7, 1955, at the office of the Authority and at the office of the Consulting Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, New York. Contract documents will be furnished upon payment of Ten Dollars ($10.00) for each set, upon application to the Authority. Contract documents are not required to be returned and the payment will not be refunded.

NEW JERSEY TURNPIKE AUTHORITY
January 7, 1955 Paul L. Troast, Chairman

Bids: February 1, 1955

Pennsylvania Turnpike Commission
Harrisburg, Pennsylvania

NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission, through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 10:00 a. m., Eastern Standard Time, the 1st day of February 1955, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania, and publicly opened and read aloud for the following contract:

For the construction of structures and the grading, drainage and paving of the Turnpike Section 37-A, part of the Northeastern Extension of the Pennsylvania Turnpike in Penn Forest Township, Carbon County, Commonwealth of Pennsylvania, this section being situated as follows:

Beginning at a point approximately 3,620 feet northeast of the center line of Legislative Route 13012 at Turnpike station 736+00 in Penn Forest Township, Carbon County; thence in a northwesterly direction 20,865 feet to Turnpike station 944+65 in Penn Forest Township, Carbon County at a point approximately 2,040 feet southeast of the center line of Legislative Route 13018, a distance of approximately 3.95 miles.

The approximate quantities of the principal items are as follows:

Class I Excavation	638,574 cu. yds.
Class 2 Excavation	18,592 cu. yds.
Class 2A Excavation	184 cu. yds.
Special Subgrade	245,518 sq. yds.
Reinforced Concrete Pavement	156,404 sq. yds.
Class A Concrete	1,259 cu. yds.
Class B Concrete	694 cu. yds.
Plain Steel Bars	215,167 lbs.
Fabricated Structural Steel	485,000 lbs.
Median Divider	19,949 lin. ft.
Type M Curbing	14,770 lin. ft.
Cast in Place Concrete Piling	484 lin. ft.

Copies of plans, specifications and other contract documents, including cross-sections, are on file and open to public inspection at the office of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania, on 14 January 1955. Plans, specifications, cross-sections and other contract documents will be available by this date for inspection or for mailing to prospective bidders. Copies of Specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five (5) dollars per copy. Copies of cross-sections may be purchased from the Pennsylvania Turnpike Commission for the sum of fifty (50) dollars per set.

Plans and contract documents, for this section exclusive of cross-sections and specifications, may be purchased from the Pennsylvania Turnpike Commission for the sum of twenty (20) dollars for each set. No refund will be made for plans returned unless the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Remittances are payable by check or P.O. money order to the Pennsylvania Turnpike Commission and must accompany requests for drawings, specifications, contract documents, and cross-sections.

The character and amount of bid security to be furnished by the bidder is stated in the Instructions to Bidders.

The Commission reserves the right to waive any informalities in or to reject any or all bids.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer

Harrisburg, Pennsylvania
3 January 1955

(Continued on following page)

OFFICIAL PROPOSALS
(Continued from preceding page)

Bids: February 3, 1955

State of New Jersey
State Highway Department
Trenton

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 42, SECTION 12-B, NORTH-SOUTH FREEWAY

Route 42, Section 12-B, North-South Freeway, from Station 212+0 to Route U. S. 130; Grading, Bridges and Incidental Paving, Gloucester City, Camden County. Federal Project No. U-193(2). Length 0.791 miles. The principal items of work are:

Estimated:

Roadway Items

46,139 cu. yds. Roadway Excavation — Earth
361,703 cu. yds. Wet Excavation
1,235,000 cu. yds. Borrow Excavation
14,053 sq. yds. Macadam Base Course, 8" thick
14,000 sq. yds. Pavement Type MA-BC-2, 3" thick
19,850 sq. yds. Conc. Pavement Surface, Rein. 9" thick
1,150 lin. ft. Clay Pipe, Sanitary Sewer
4,315 lin. ft. Reinforced Concrete Culvert Pipe
1,594 lin. ft. Cast Iron Sewer & Culvert Pipe
2,019 lin. ft. Corrugated Metal Culvert Pipe
54 Inlets and Manholes
19,150 lin. ft. White Concrete Vertical Curb

Bridge Items

5,788 cu. yds. Foundation Excavation
8,216 cu. yds. Concrete in Structures
773,206 lbs. Reinforcement Steel in Structures
2,095,500 lbs. Structural Steel
38,156 lin. ft. Timber Piles
10,395 lin. ft. Concrete Piles

Bids for the above will be received at the office of the State Highway Department, in the CAFETERIA, State Highway Office Building, 1305 Parkway Avenue, Trenton, New Jersey, on Thursday, February 3, 1955, at TEN o'clock (10:00 A.M.-EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plan and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements and by P. L. 413, 82nd Congress, and by an agreement with the Delaware River Port Authority, and is to be performed in accordance with the Required Provisions = Federal-Aid Contracts of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $0.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished upon payment of a fee of TEN DOLLARS ($10.00) which will not be refunded for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J., with a check drawn to the order of the State Highway Department. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed:
STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

Bids: January 18, 1955

Contract 399

MODIFYING THE STRUCTURE AT SHAFTS 19

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time, on Tuesday, January 18, 1955, for Contract 399, for modifying the structure at Shafts 19 of the Delaware aqueduct in the Town of Mount Pleasant, Westchester County, New York. The work includes the casting and installation in the waterways of reinforced concrete blocks for weirs and sidewalls, the construction of a reinforced concrete vent chamber, the removal and relocation of vent piping, the removal and replacing of reinforced concrete roof covers, the furnishing and erection of a wire fence, and excavating, refilling, embanking, paving, masonry and other work incidental to or in connection with that mentioned above, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of the City of New York, in the amount of five thousand dollars ($5,000.00) for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained in Room 1316 at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, EDWARD C. MAGUIRE, HERBERT M. ROSENBERG, Commissioners, Board of Water Supply; BETTY COHEN, Acting Secretary.

Bids: February 3, 1955

Catasauqua Borough Authority

Sealed proposals will be received by the undersigned at the office of the Catasauqua Borough Authority, in the Town Hall, 118 Church Street, Catasauqua, Lehigh County, Pennsylvania until Thursday, 8:00 P.M. E.S.T. Feb. 3, 1955 at which place and time, or shortly thereafter they will be publicly opened and read, for furnishing all necessary labor, materials and equipment, and performing all work for the Contracts noted below. Separate proposals will be received upon five (5) parts of the project as hereinafter indicated. Each proposal shall be accompanied by a certified check or bid bond in an amount not less than ten (10) percent of the bid total, all in accordance with the provisions contained in the Contract Documents.

Copies of the Contract Documents, including Drawings and Specifications will be on file, for inspection purposes only, at the office of the Catasauqua Borough Authority in the Town Hall, 118 Church Street, Catasauqua, Pennsylvania; they may also be seen at the office of Gannett Fleming Corddry & Carpenter, Inc., Engineers, 600 North Second Street, Harrisburg, Pennsylvania, from whom only they may be obtained, not to exceed two (2) sets of any particular Contract to a prospective bidder, upon deposit of the indicated amounts for each set:

Contract One—CONSTRUCTION OF A SEWERAGE SYSTEM $25.00
Contract Two—GENERAL CONSTRUCTION OF A SEWAGE TREATMENT PLANT $25.00
Contract Three—PLUMBING WORK IN CONNECTION WITH CONSTRUCTION OF A SEWAGE TREATMENT PLANT $25.00
Contract Four—HEATING WORK IN CONNECTION WITH CONSTRUCTION OF A SEWAGE TREATMENT PLANT $25.00
Contract Five—ELECTRICAL WORK IN CONNECTION WITH CONSTRUCTION OF A SEWAGE TREATMENT PLANT $25.00

Full refund will be made only to actual bidders on the five (5) prime Contracts noted above, for return of one (1), no more, of each set in good condition within ten (10) calendar days after closing date for receipt of bids; refund for return of all other sets, in good condition, within the same period, will be fifty (50) percent of deposit.

Gannett Fleming Corddry & Carpenter, Inc., Engineers
600 North Second Street
Harrisburg, Pennsylvania

Catasauqua Borough Authority
Catasauqua
Lehigh County,
Pennsylvania

Bids: January 26, 1955

Construction of a Sewerage System

Sealed proposals will be received by the Mercersburg Borough Authority, at the office of the Secretary of the Mercersburg Borough Authority, 21 West Seminary Street, Mercersburg, Franklin County, Pennsylvania, until 2:00 P. M., E. S. T., January 26, 1955, and they will be publicly opened and read shortly thereafter at the Community Room in the First National Bank, Center Square, Mercersburg, Franklin County, Pennsylvania, for furnishing all necessary labor, materials and equipment, and performing all work for the Contracts noted below. Separate proposals will be received upon five (5) parts of the project as hereinafter indicated. Each proposal shall be accompanied by a certified check or bid bond in amount not less than ten (10) per cent of the bid total, all in accordance with the provisions contained in the Contract Documents.

Copies of the Contract Documents, including Drawings and Specifications will be on File, for inspection purposes only, at the office of the Secretary of the Mercersburg Borough Authority, 21 West Seminary Street; they may also be seen at the office of Gannett Fleming Corddry & Carpenter, Inc., Engineers, 600 North Second Street, Harrisburg, Pennsylvania, from whom they may be obtained, not to exceed two (2) sets of any particular Contract to a prospective bidder, upon deposit of the following indicated amounts for each set:

Contract One—CONSTRUCTION OF A SEWERAGE SYSTEM $20.00
Contract Two—GENERAL CONSTRUCTION OF A SEWAGE TREATMENT PLANT $20.00
Contract Three—PLUMBING WORK IN CONNECTION WITH CONSTRUCTION OF A SEWAGE TREATMENT PLANT $20.00
Contract Four—HEATING WORK IN CONNECTION WITH CONSTRUCTION OF A SEWAGE TREATMENT PLANT $20.00
Contract Five—ELECTRICAL WORK IN CONNECTION WITH CONSTRUCTION OF A SEWAGE TREATMENT PLANT $20.00

Full refund will be made only to actual bidders on the five (5) prime Contracts noted above, for return of one (1), no more, of each set in good condition within ten (10) calendar days after closing date for receipt of bids; refund for return of all other sets, in good condition, within the same period, will be fifty (50) per cent of deposit.

Gannett Fleming Corddry & Carpenter, Inc., Engineers
600 North Second Street
Harrisburg, Pennsylvania

Mercersburg Borough Authority
Mercersburg
Franklin County,
Pennsylvania

U. S. Government

DEPARTMENT OF THE INTERIOR. Bureau of Reclamation. Sealed bids (Specifications No. DC-4329), will be received at Casper, Wyoming, until February 9, 1955, for furnishing labor and materials for Alcova-Gering and Lingle Tap 115-kilovolt Transmission Lines, Transmission Division, Wyoming-Nebraska, Missouri River Basin Project. Location: Natrona, Converse, Platte and Goshen counties, Wyoming; and Scottsbluff county, Nebraska. Principal items are 1,642 structures—furnishing and constructing wood pole structures of various types; 5,136 assemblies—furnishing, assembling and attaching insulator assemblies; 207.1 miles of line—furnishing and stringing three 397,500 circular mil ACSR conductors; 207.1 miles of line—furnishing and stringing two ⅜-inch galvanized-steel overhead ground wires; and other work. Completion time 730 days. For particulars, address Bureau of Reclamation, Casper, Wyoming; or Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

Bids: February 8, 1955

Contract LT-160.052

LINCOLN TUNNEL—THIRD TUBE
WIDENING OF VIADUCT IN
NORTH BERGEN, N. J.
FOUNDATIONS

Sealed proposals for the construction of foundations for the widening of the Lincoln Tunnel approach viaduct in North Bergan, N. J., will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, February 8, 1955, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1112. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1112, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of the documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, January 13, 1955

Bids: January, 19, 1955

Kansas Turnpike Authority

Contract 5-15-F (1)
Contract 5-16-F (1)
Fencing

Sealed proposals for furnishing and installing fencing for Projects 5-15-F (1) and 5-16-F (1), Butler and Chase Counties, Kansas, will be received at the office of the County Clerk, Emporia, Kansas, until 9:00 a. m. on January 19, 1955, at which time said proposals will be opened and read.

Contract documents may be seen at the office of the Kansas Turnpike Authority, 2306 West Tenth, Topeka, Kansas, and at the office of the County clerks in Butler County, Eldorado, Kansas and Chase County, Cottonwood Falls, Kansas.

Documents for bidding will be furnished qualified contractors upon deposit of $8.00 per project set.

Requests for bidding proposals, deposits shall be mailed to Kansas Turnpike Authority, Attention: L. W. Newcomer, Office & Contract Engineer. Contract documents are not required to be returned, and the payment will not be refunded.

KANSAS TURNPIKE AUTHORITY
Francis Jacobs, Chairman
Gale Moss, General Manager

Bids: January 25, 1955

The Mississippi River Bridge Authority Contract No. 3

INVITATION TO TENDER

The Mississippi River Bridge Authority of the State of Louisiana invites proposals for the construction of the Substructure of the River Crossing for the Greater New Orleans Bridge over the Mississippi River at New Orleans, Louisiana. Sealed proposals for the Work described will be received by The Mississippi River Bridge Authority in the office of the Authority, 422 City Hall Annex, New Orleans, Louisiana, until 10:00 A.M., Central Standard Time, January 25, 1955. Proposals will not be received after this hour. At 10:00 A.M. of the same day and date, the proposals will be publicly presented, publicly opened and publicly read in the Commission Council Chamber, City Hall.

This Contract No. 3 covers the furnishing of all materials for and the construction of the four piers, designated I, II, III and IV, supporting the river spans of a four-lane highway bridge in the City of New Orleans over the Mississippi River in the vicinity of Thalia Street in New Orleans and Bringier Street on the Algiers side, New Orleans, a willow mattress and timber fender for Pier II, and incidental construction.

A fuller description of the work to be done and of the requirements, provisions, and details thereof is given in the Contract Drawings, Contract Documents and Specifications, copies of which are on display in the office of the Authority, Room 422, City Hall Annex, New Orleans, Louisiana, and in the offices of the Engineers, Modjeski and Masters, 2400 Canal Street, New Orleans, Louisiana, and State Street Building, Harrisburg, Pennsylvania, or may be obtained from said latter office upon the deposit of Twenty Dollars ($20.00) per set. Deposit checks shall be made payable to Modjeski and Masters.

No Proposal will be received unless accompanied by a certified check satisfactory to the Authority drawn upon a National or Louisiana State Bank or Trust Company having an office or place of business in New Orleans, Louisiana, and payable to the order of The Mississippi River Bridge Authority for the sum of Five Hundred Thousand ($500,000) Dollars as security for the proper execution of the Contract. Such check must not be enclosed in the sealed envelope containing the bid but must be delivered to the office of the Authority. Proper receipt for the deposit will be given by the Authority.

THE MISSISSIPPI RIVER BRIDGE AUTHORITY
Neville Levy, Chairman

Bids: January 24, 1955

State of Connecticut Highway Department

NOTICE TO ALL CONTRACTORS:

Sealed bids for the construction of the following projects will be received by the State Highway Commissioner, in Room 527, at the State Office Building in Hartford, Connecticut, until 2:00 P.M. E.S.T., Monday,—January 24, 1955, then at said office or at such place at that time designated, publicly opened and read.

GREENWICH-KILLINGLY EXPRESSWAY PROJECT 316-02

TOWN OF WEST HAVEN: A single span composite beam bridge over Campbell Avenue; a three span composite beam bridge over First Avenue; a six span composite beam bridge over the New York, New Haven & Hartford Railroad, and about 1,822 linear feet of grading and drainage on the Expressway. Engineer: M. B. Pearce, District #3 New Haven.

The minimum rates of wages to be paid labor of the various classifications shall be in accordance with the current schedule of wages established by the State Labor Commissioner, as provided in Section 2206 of the General Statutes of the State of Connecticut, Revision of 1949 as amended by Public Act No. 9 of the Special Session of March 1950, entitled: "Rates of Wages for Work on State Highways" but, in no case less than the minimum shown for the different grades of labor on the above project.

Plans and specifications for the above project may be examined in Room 527, State Office Building, Hartford, and in the four district offices at Hartford, Norwich, New Haven and New Milford. All proposals must be obtained in Hartford.

NOTE: Contractors wishing to receive plans for their own use must obtain them in Room 527, State Office Building, Hartford, upon payment by check made payable to the Treasurer, State of Connecticut, as follows:

	Conn Cost	Sales Tax	Total
West Haven	$19.92	$ .60	$20.52
(Bridge plans only)	4.80	.15	4.95

All bidders are required to inform themselves fully of the conditions relating to the construction and labor under which the work will be or is now being performed, and the contractor must employ, as far as possible, such methods and means in the carrying out of this work as will not cause interruption or interference with any other contractor.

NOTE: Surety Company Bond on form furnished by the Highway Department, for at least one-third of the amount of the bid, must accompany each proposal, unless the contractor shall have filed with the office an annual proposal bond; certified checks will not be accepted. The State Highway Commissioner reserves the right to reject any any and all bids.

G. Albert Hill
STATE HIGHWAY COMMISSIONER
December 30, 1954.

Bids: January 27, 1955

Latham Water District, Colonie, New York

STEEL STORAGE TANKS, WATER MAINS, WELL, WELL IMPROVEMENTS, METERS AND MISCELLANEOUS WATER WORKS CONSTRUCTION FOR LATHAM WATER DISTRICT, COLONIE, NEW YORK

Sealed bids will be received at the office of the Town Clerk of the Town of Colonie in the Town Hall, Newtonville, New York on the 27th day of January, 1955, until 2:30 P.M. E.S.T. for furnishing all labor, materials and equipment and constructing complete, one million gallon standpipe, 500,000 gallon elevated tank with 12, 14 and 16 inch pipe connections to distribution system, about 3300 feet of 8 inch mains with appurtenances, drilling a well and providing same with pump and pipe connections to existing facilities, cleaning and reconditioning an existing well, two 8 inch meters with piping, valves, work and additions to existing chambers and miscellaneous work connected to above additions and improvements to water works system.

The Information for Bidders, Form of Bid, Form of Contract, Plans, Specifications and Performance Bond may be examined at the office of the Town Clerk, Town Hall, Newtonville, New York, and at the office of Keis & Holroyd, 257 Broadway, Troy, New York. Copies thereof may be obtained at the office of Keis & Holroyd or from the Town Clerk, upon payment of $25.00 for each set. Any bidder upon returning such set promptly and in good condition, will be refunded his payment, and any non-bidder upon so returning such set will be refunded $20.00. To obtain refund, non-bidders must return plans and specifications within 15 days.

The Town Board of the Town of Colonie, New York, reserves the right to waive any informalities in or to reject any or all bids.

A certified check made payable to the order of the Town of Colonie, in the amount of 5% of the bid, must be deposited by each bidder with his bid as a guarantee that in case the contract is awarded to him, that he will, within 5 days thereafter, execute such contract and furnish a satisfactory performance bond. On failure to do so, he shall forfeit the deposit as liquidated damages and acceptance of the bid will be contingent upon the fulfillment of this requirement by the bidder.

The successful bidder will be required to furnish a performance bond satisfactory to the Town of Colonie, New York, in the amount of the contract, and having as surety thereon, such surety company or companies as are acceptable to the Town of Colonie, New York.

The work will be let in separate contracts as follows:

Section 1—Furnishing f.o.b. West Albany, New York, cast iron pipe and cast iron specials for the Wade Road main.

Section 2—Furnishing all valves and valve boxes, f.o.b. West Albany, New York, for mains in Wade Road.

Section 3—Furnishing and erecting on foundations prepared by others, one 1,000,000 gallon standpipe and one 500,000 gallon elevated tank.

Section 4—For foundations for standpipe and elevated tank, furnishing and installing pipe, valves and equipment in mains to connect tanks to distribution system.

Section 5—For drilling well, furnishing and installing pump for same, and all work at wells except concrete masonry, and pipe work to connect new well to existing facilities.

Section 6—For masonry construction, furnishing and installing all pipe, specials, valves and miscellaneous equipment from pump to existing facilities.

Section 7—For constructing the water main in Wade Road.

Section 8—For furnishing f.o.b. West Albany, New York, the water meters required for measuring the flow of water in the Albany-Schenectady Road mains.

Section 9—For furnishing and installing all equipment and materials except two meters required for the two meter chambers and the meters to be installed therein as shown on plans or called for by the specifications. The two 8 inch meters will be furnished f.o.b. Albany by others but their installation is included in Section 9.

No bidder may withdraw his bid within 30 days after the date set for the opening thereof. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof.

WILLIAM K. SANFORD, Supervisor

Dated:
KEIS & HOLROYD
Engineers
Troy, New York

(Continued on following page)

OFFICIAL PROPOSALS
(Continued from preceding page)

Bids: January 26, 1955

City of Binghamton

REFUSE DISPOSAL PLANT
CONTRACT
FOR
FURNACES AND APPURTENANCES

1. Sealed proposals for performing all work in connection with the furnaces and Appurtenances are hereby invited and will be received by the Board of Contract and Supply until 10:30 o'clock, Eastern Standard Time, on January 26, 1955, in the Council Chambers, City Hall, Binghamton, New York and there publicly opened and read immediately thereafter.
2. The work will consist of providing all labor, materials, equipment and incidentals and performing all operations in connection with the fabrication, furnishing, erecting and testing of the Furnaces, Combustion Chambers, Settling Chambers, Flues, Forced Draft Equipment and all other Appurtenances, all as described in greater detail hereinafter, complete and ready for municipal operation. Other contracts, which will be advertised and awarded subsequently, will provide for the construction by others of the foundations, building, chimney, related work and site improvement.
3. Drawings, specifications, bidding and contract documents may be examined at the office of the Consulting Engineers, Leonard S. Wegman Co., Grand Central Terminal Building, New York 17, N. Y., or at the office of the City Engineer at City Hall and obtained from the latter at a deposit of $25 per set. Full refund will be made to actual bidders for return of each set in good condition within two weeks after closing date for receipt of bids.
4. Each bid must be accompanied by a Bid Security in the form of a certified check payable at sight to the Treasurer of the City of Binghamton in an amount not less than Five Percent (5%) of the amount of the total bid. Such Bid Security will be returned to all except the three lowest formal bidders within five (5) days after the formal opening of bids, and the remaining Bid Securities will be returned within two (2) days after the Owner and the accepted bidder have executed the contract, or if no contract has been executed, within thirty (30) days after the date of opening of bids, upon demand of Bidder at any time thereafter, so long as he has not been notified of acceptance of his bid. If the Bidder to whom the contract is awarded does not execute the contract and furnish the required bond within fifteen (15) days after receipt of notice of award, the aforesaid Bid Security shall be paid to the City Treasurer as liquidated damages.
5. The Owner reserves the right to reject any or all bids, to waive any informality in bids received and to accept that bid which in its judgment best serves the interests of the City.

BOARD OF CONTRACT AND SUPPLY
BY: William Chuma, Secretary
Dated: January 5, 1955

CONTRACTORS WATCH THIS SECTION

for New Projects

Publish your announcements thru the "Proposal Section" of Engineering News-Record and get their bids.

EMPLOYMENT

AND OTHER BUSINESS OPPORTUNITIES

PROJECT MANAGER

For Proposed Mediterranean Work
Two Years Service

Should have prior off-shore administrative experience with U. S. Corps of Engineer Procedure

Project Scope: Heavy grading, underground & surface utilities, pavements, permanent military housing & buildings all types—electric installations—industrial piping.

P4923, Engineering News Record
520 N. Michigan Ave., Chicago 11, Ill.

Refinery Construction Superintendent.

Must have minimum 5 years experience in full charge major installations.

Must have full knowledge of Piping, Rigging, Instrumentation, Boilermaker Work, Millwrighting, Welding.

Prefer College Graduate.

State experience record and salary expected.

California location.

P 5103 Engineering News-Record
1111 Wilshire Blvd. Los Angeles 17, Calif.

CONSTRUCTION SUPT.

For General Contractor

Must be familiar with concrete construction, brickwork, etc. and capable of coordinating subcontractors work. State experience, when available and salary requirements.

P-4223, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

DRAFTSMEN

Experienced structural steel detailers and checkers for building work and conveyor detailing. Consulting office with good working conditions, vacation plan, payed holidays, and hospitalization program. Please send complete written information in first letter.

SAMBORN, STEKETEE & ASSOCIATES
1214 Cherry Street Toledo 4, Ohio

EXECUTIVE POSITION

Shopping Center Project Manager

Large Center in Southwest Texas. Man must be experienced and able to submit evidence of proven accomplishments. Must have earned $10,000 to $12,000 a year. We will check references carefully. We are willing to pay bonus on achievements.

Box 969, 1474 Bway. N. Y. C., N. Y.

DESIGN ENGINEERS

Excellent opportunity for Engineers experienced in design of Filter Plants and Water Works—Bridges and Highway. Recent Graduates also accepted. Good living conditions and Bonus and Pension Plan. Include experience, date available, salary desired in first letter. Gannett Fleming Corddry & Carpenter, Inc., Box 366, Harrisburg, Pa.

BRIDGE ENGINEERS

Designers—5 years experience in both steel and concrete.
Recent Graduates — Structural majors, preferably with Master degrees.
Highway Engineer—Familiar with interchange layouts.

FRANK D. McENTEER
504 Baltimore Avenue, Clarksburg, W. Va.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

DRAFTSMAN, STRUCTURAL detailer thoroughly experienced in bridge and building work. This is a permanent job with a medium sized old established fabricator. All employee benefits, paid vacation, insurance, etc. Reply by letter stating experience, etc., to St. Joseph Structural Steel Co., Box 68, Station A, St. Joseph, Mo.

BRIDGE DESIGNERS wanted by long established consulting engineer. Unusual opportunities for experienced men. Prompt promotion for younger men. Give education, experience, references and salary expected. P-4912, Engineering News-Record.

CHIEF ESTIMATOR — Philadelphia general contractor needs outstanding man. Must have extensive experience with foundation work, reinforced concrete, and all types of industrial buildings. Submit resume and salary desired. Robert E. Lamb & Son, Inc., 3429 W. Indiana Ave., Phila. 32, Pa.

WANTED: TWO structural steel detailers and designers with experience. Positions permanent. P-4962, Engineering News-Record.

BRIDGE—HIGHWAY Engineers—Designers—Draftsmen. For work on bridges, expressways and turnpikes. Location Midwest. Permanent positions with periodic promotions depending on experience and ability. Paid vacations, sick leave, hospitalization and life insurance. Include education, experience, reference and salary expected in application letter. P-4968, Engineering News-Record.

YOUNG, RAPIDLY expanding construction company wants professional engineer for industrial contact work and to head small engineering department. Paper mill industrial background and more than average ability required. P-4991, Engineering News-Record.

EXPERIENCED ASPHALT Plant operator capable assuming full charge modern asphalt plant in Northern New Jersey. Send full information as to background and income requirements in first letter to P-5015, Engineering News-Record.

DRAFTSMEN—STRUCTURAL Detailers—permanent positions with medium size structural shop in large city on eastern seaboard. Write fully, stating age, experience, availability, and salary requirements. P-5055, Engineering News-Record.

EXPERIENCED OFFICE Engineer-estimator to work for general contractor. New York-New Jersey area. P-5054, Engineering News-Record.

NEW YORK-New Jersey firm seeks experienced outside construction man as general superintendent-project manager. P-5053, Engineering News-Record.

CITY ENGINEER: City of National City, Calif. (pop. 27,000) invites applications. Civil Engineering California State Registration required. Salary open. Desirable qualifications: municipal, 1911 Act, drainage, sewage experience. Inquiries and biographical data should be directed to J. A. Bird, City Manager, City Hall, National City, California.

PROJECT SUPERINTENDENTS — To completely handle in field complete mechanical contract portions of large industrial and institutional building projects. Middle Atlantic States. Give complete details, including projects handles and dollar value, age, references and salary expected. P-5059, Engineering News-Record.

(Continued on opposite page)

STRUCTURAL ENGINEER

We have an unusual opportunity for a graduate design engineer to serve as a consultant with the sales and application engineering department of a strong manufacturer of structural building products. He should be under 45 and have 10 to 20 years design experience on large commercial and industrial structures, as well as the ability to transmit ideas to others. Initial compensation will include a salary of $8-10,000; company car; bonus; and many fringe benefits. If interested, forward two resumes, in confidence to: Tomsett Associates, Management Personnel Counselors, 431 Frick Bldg., Pittsburgh 19, Pa. *Client assumes our fee.*

CLASSIFIED SEARCHLIGHT SECTION ADVERTISING

EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:
(Not available for equipment advertising)
$1.80 cents a line, minimum 3 lines. To figure advance payment count 5 average words as a line.

POSITION WANTED undisplayed advertising rate is one-half of above rate, payable in advance.

PROPOSALS, $1.80 a line an insertion.

INFORMATION:

BOX NUMBERS count as 1 line additional in undisplayed ads.

DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED—RATE PER INCH:

The advertising rate is $20.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches—to a page. E.N.R.

Send NEW ADVERTISEMENTS: To New York Office, 330 W. 42nd St., N. Y. 36 for January 27th issue closing January 17th

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WANTED

Man to act as

BRANCH MANAGER

In new building for Caterpillar Distributor in Northeastern United States. Must have experience in sales, sales control, parts and service management. Please write and give full qualifications.

P-5041, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

ENGINEERS

Foreign Service

Graduate Chemical, Mechanical, and Electrical Engineers with minimum of 5 years' experience. For specialized assignments commensurate with qualifications in various phases of project and process engineering. Write giving full particulars regarding personal history and work experience. Please include telephone number.

Recruiting Supervisor, Box 30

ARABIAN AMERICAN OIL COMPANY

505 PARK AVENUE, NEW YORK 22, N. Y.

POSITIONS VACANT

(Continued from opposite page)

DESIGN ENGINEERS—Men having experience in design and preparation of drawings and reports for Sanitary Sewer, water distribution and municipal-type storm drainage systems. Good pay for qualified men with training and experience. Opportunity for advancement. Furnish full information regarding education, training and experience, age, references and salary required. Replies strictly confidential. P-5082, Engineering News-Record.

GRADUATE ARCHITECT or Engineer interested in the business side of architecture to process and coordinate details in connection with regional shopping centers. Salary open. John Graham and Company, Architects and Engineers, 1426 Fifth Avenue, Seattle 1, Washington.

BRICKLAYER FOREMAN—Must be capable of laying out work and securing production and accept responsibility. Free to travel. Apply James McHugh Construction Co. 6449 South Park Avenue, Chicago 37, Illinois, Butterfield 8-4100 (Extension 17, for appointment for interview).

SUPERINTENDENT: TOP-flight highway and bridge superintendent wanted by contractor with headquarters in New England. Must be able to produce and have a following of key men. Must be available within 30 days. Liberal compensation for qualified man. P-5085, Engineering News-Record.

STRUCTURAL STEEL Draftsman & Est. must have minimum of 5-10 yrs. experience in structural steel designing and estimating. Starting salary $5-7,000. Good future with structural steel fabricator in Ohio. P-5091, Engineering News-Record.

WANTED: MECHANIC, familiar with all types of heavy road equipment. Some ability to operate same. Work in central New York. P-5093, Engineering News-Record.

GRADE FOREMAN, familiar with all types of heavy excavation and grading. Good opportunity. Work in central N. Y. State. Experience references. P-5096, Engineering News-Record.

CARPENTER FOREMAN, familiar with all types of bridge work. Good opportunity with good concern. P-5098, Engineering News-Record.

CHEMIST MINIMUM two years analytical experience. Salary $5060. Liberal fringe benefits. Write Box 51, Marietta, Georgia.

WANTED: MECHANICAL and electrical engineers for permanent staff. Experience preferred. Telephone 36472 or write Sherlock, Smith & Adams, Architects & Engineers, 303 Washington Avenue, Montgomery, Alabama.

DRAFTSMAN WANTED excellent opportunity for a draftsman well experienced in plumbing "layouts" to locate with a long established firm. Good salary for the right man. Attractive working conditions. Write to Alfred Steele, Jarcho Bros., Inc., 38-18 33rd St. Long Island City, N. Y.

SELLING OPPORTUNITY OFFERED

SALES TRAINER—Nationally-known company engaged in the manufacture and distribution of fabricated metal products has opening in New York City office for sales correspondent with civil engineering degree. SW-4692, Engineering News-Record.

POSITIONS WANTED

4 SINGLE men ages 30-35 B.Sci. with engineering, contract and administrative background desires foreign or domestic positions. Personal resumes available. Address PW-4904, Engineering News-Record.

GRADUATE CE, 32, 8 yrs. heavy, industrial and acid plant experience as area supt., office engineering and some estimating. Desire responsible position with progressive contractor. Consider estimating position. Prefer Atlantic Coast. PW-4956, Engineering News-Record.

AVAILABLE REGISTERED Illinois professional civil engineer and land surveyor. Excellent supervisory experience in heavy industry and construction. Will travel. Age 41. PW-4981, Engineering News-Record.

ENGINEER EXECUTIVE age 40, B.S.C.E., registered several states, married, top administrative and management background industrial and chemical projects. Know customer-labor relations, contract negotiation-sales. Positions field eng'r., supt., project manager and staff level assignment U. S. and abroad. Well connected. PW-5012, Engineering News-Record.

ESTIMATOR—GENERAL Contractor quantities, price, competitive bids, industrial, public, monumental, complete office details, buy, schedule, expedite, costs, handle subs, long experience, desires to relocate, South or West Coast. PW-4987, Engineering News-Record.

CIVIL ENGINEER age 37. Long experience in heavy construction. Also municipal, highway and office. PW-5000, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT. Desires position with sound company for Earth moving on highways, earth filled dams, canals, pile driving, river and harbor work. Twenty-five years experience with draglines, shovels and all type earth moving equipment. PW-4965, Engineering News-Record.

EQUIPMENT SUPERINTENDENT: available for position as equipment manager 25 years experience with all type equipment large or small. PW-4964, Engineering News-Record.

CONSTRUCTION EXECUTIVE, available as project manager, on large operation, chief estimator for large organization or in other executive position where scope warrants employment of top man, thoroughly experienced on all types of construction and in every phase of general contracting. PW-5074, Engineering News-Record.

POSITIONS WANTED

ESTIMATOR, AGE 40, building and heavy construction. Experienced on buildings, filter plants, disposal plants, bridges, piers, dams, hydro plants etc. Take off, price, purchase and manage. Write A. R. Klotz 57 W. River Rd. Rumson, N. J.

B.S.C.E., 33, 5 years experience design and construction industrial steel and concrete on multi-million dollar projects. Aggressive and thorough. Responsibility a must! PW-5049, Engineering News-Record.

CONSTRUCTION STIFF. Rigger, who has worked with lubricating oil for years as a hobby, seeks employment in a modest capacity, with a construction company, or other fleet owner using large quantities of oil, where his information and paraphernalia will be investigated, and where he will be encouraged to go ahead with some things he wants to do. Local or foreign. Sidney Stribling, Sta. 8, Asan, Agana, Guam, M. I.

HEAVY CONSTRUCTION Executive: Thoroughly experienced, qualified and cost-conscious. Seeks company whose volume and scope require full use of man with ability to handle every phase in field or office. PW-5048, Engineering News-Record 68 Post Street, San Francisco, California.

YOU NAME it—I'll do it: Graduate of Annapolis and M.I.T. in C.E.: line officer in Navy—4 yrs.; Ill. St. H'way—18 mos.; hydrogen bomb plant constr. area eng'r.—18 mos.; ordnance plant constr. area eng'r.—4 mos., Paducah atomic plant constr. coordinating mechanical sup't.—20 mos.; Portsmouth atomic plant P.G. pipe erection senior eng'r. Age 34, married, 2 children, hard worker, hustler, conscientious, reliable, cost conscious, will make you money . . . guaranteed. Speak Spanish fluently. Go anywhere. Available now. Present salary $163/wk. PW-5047, Engineering News-Record.

(Continued on the following page)

LEARN ESTIMATING

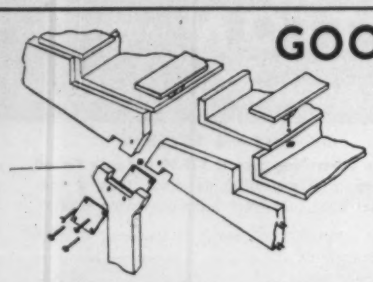
Complete Building Estimators Course, also Building Labor Calculator for practicing estimators. Thirty-fourth year serving the building industry. For free trial and all particulars write:

TAMBLYN SYSTEM
1420 Gilpin St. Denver 6, Colorado

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING
OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. Forty-third year.
WILSON *Engineering Corp*
College House Offices HARVARD SQ. CAMBRIDGE MASS.

It's Here . . . Contractors, Estimators
New Book
ESTIMATING PRODUCTION AND CONSTRUCTION COSTS
Never Goes Out of Date
Estimate general construction costs. More Accurate. Write for 10 day free exam. $15 postpaid from:
THE DALLAVIA CO.
Dept. E 2110 Elmen, Houston, Texas

Engineers—Foremen—Office Men
Learn latest methods to organize and run work. Prepare for the top jobs.
Send post card for details.
GEO. E. DEATHERAGE & SON
CONSTRUCTION CONSULTANTS
411 So. 5th Ave. Lake Worth, Florida



GOOD BUSINESS FOR "CONTRACTORS"

PROFITABLE SALES OPPORTUNITY

Highly profitable franchises available for Sales and Construction of patented, pre-cast concrete Grandstands on a royalty basis. Tremendous sales potential already proven. For use by schools, colleges, county fairs, race tracks, rodeos, etc.

This operation necessitates companies or individuals capable of handling large volume contracts and having experience in sales promotion work. Send for brochure.

• Over 40 "CASTADIA" have been built in the Mid-West

Contact——— **CASTADIA, INC.**
2242 North 36th Street Milwaukee 8, Wisconsin
Phone—Hilltop 2-5020

POSITIONS WANTED
(Continued from preceding page)

CIVIL ENGINEER B.C.E. steel detailer and designer with nine years experience seeking change in employment to structural shop in N.Y.C. or L.I. area as detailer & estimator age 28 married. PW-5105, Engineering News-Record.

CIVIL ENGINEER, 15 years municipal engineering and construction, zoning, inspections, etc. Age 38, Reg. P.E., BSME, 3 years CE courses, holding responsible administrative position several years. Desires consulting, construction, municipal fields, with future. PW-5073, Engineering News-Record.

GEN. SUP'T. Bridge construction thoroughly familiar, all types bridge construction. Sober, willing to relocate. Presently completing 7. structure job. Available immediately. PW-5075, Engineering News-Record.

GRADUATE IN building construction age 27 With 2½ years experience in quantity take off estimating and field work seeks employment in general construction work. D. R. Stuart, 2118D Bragg Ave., Mobile, Alabama.

GOOD MAN seeks better job as estimator project manager heavy construction varied field office experience. PW-5099, Engineering News-Record.

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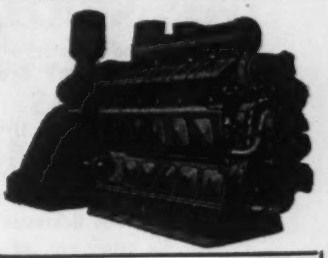

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EDITORIALS

Pre-assignment Physical Examinations

A POTENTIAL MONEY-SAVER, largely untested in construction safety, is the worker's physical examination. Its correct function is to assist in assigning men to tasks within their capabilities, on the assumption that exposure to unwarranted hazards would be eliminated. Accidents would be reduced, and compensation rates—a substantial cost item in construction—would come down.

Understanding the exam's correct function is the only new aspect of this idea, but it is an understanding that can mend an old point of contention in construction labor relations: Unions don't want physical exams; employers and insurance companies do.

Here and there, for especially hazardous work, laws have been enacted requiring physical exams. These laws would seem to give management a foot in the door, but they have been rendered toothless by the unions.

A case in point is found in the Lincoln Tunnel third tube, where compressed air work will begin shortly to push a shield under the Hudson River from New Jersey to New York. Laws of both states require physical exams of men going under air, but don't specify the extent of examination. Practice has condoned a simple routine that misses hidden afflictions suffered by sandhogs (ENR Jan. 6, p 17).

Port of New York Authority—the tunnel owner, holder of the compensation insurance and giver of the required physical examinations—proposed to add three revealing checks. They were X-ray, blood tests and electrocardiogram. The sandhog union refused to take such an examination, there being talk of a strike in case the Port Authority insisted. Now it is known that the Port Authority has dropped the proposal.

We must not condemn the Port Authority for failure to take a heroic stand. Rather we should deplore lack of progress in mutual understanding and trust between management and unions on the subject of physical examinations.

Unions fear the physical examination because some contractors will bar men with any physical defects, regardless of their obvious capability for many construction tasks. This much is basic, but unions will enlarge on it, anticipating employers who would use the exams as weapons in other personal situations. The employers, in their turn, will accuse the unions of such crass and inhuman motives as foisting compensation cases on the insurance carriers, and preserving seniority at all costs, even sending men into jeopardy of health, under protection of the physical-exam taboo.

We doubt that intelligent labor leadership is that cynical, but these are facets of the distrust that will frustrate preventive medicine in the cause of construction safety, as long as the idea persists that a physical examination would be a condition of employment—a "pre-employment" exam. (Which, unfortunately, the Lincoln Tunnel exam amounts to.)

"Pre-assignment" is the magic word combination that grows in contemporary thinking as a substitute for "pre-employment" physical examination. Such exams would be based on medical standards, which, we submit, should be set by agreement among representatives of industrial medicine, construction employers and labor.

A suitable climate for agreement will exist when labor unions know that no man will be barred, on account of his physical condition, from a job that he is fit to do. In other words, that each man will be privileged to work safely, in the light of full knowledge of his limitations. On management's side there are both humanitarian and dollar incentives for working toward the pre-assignment physical examination.

More Progress in Prestressing

A NEW TECHNIQUE for prestressing concrete beams is being introduced independently in two parts of the country. Its object is to secure for the pretensioning method one of the major advantages of post-tensioning, namely the draping of tendons in a vertical curve.

Such curving of the steel introduces uplift forces that create counteracting stresses in the concrete, varying along the length of the beam somewhat as the bending stresses produced by loads. This permits more efficient use to be made of both steel and concrete.

The new technique is being used for a bridge with pretensioned girders of 82-ft span designed by Ross H. Bryan, consulting engineer, Nashville, Tenn., for construction in Davidson County, Tenn. Girders, 42 in. deep, spaced 6 ft c-c, will be prestressed with forty $\frac{3}{8}$-in.-dia strands. Tensioned in a deflected position before concrete is placed in the beam forms, the strands will be anchored by bond throughout their length, to transfer both vertical and horizontal stresses to the concrete.

The technique is also being tried out at the University of Miami (Fla.) under a research grant by I. E. Schilling Co., Miami concrete products firm. Last month, the civil engineering department, headed by Prof. Murray Mantell, sponsored a bending test of a pretensioned beam with curved tendons, which was watched by 300 engineers and architects. The beam, designed by faculty member Merrill Crissey, carried nearly three times its design load without distress.

An ENR survey made last fall revealed a trend in the U. S. toward pretensioning, which apparently started at the end of 1953 (ENR Sept. 2, p. 144). This trend probably gained headway because most prestressed bridges now under construction require short spans, and pretensioning is more economical than post-tensioning in that range. The new technique of draping tendons in a vertical curve, by improving the efficiency of pretensioning, should give greater impetus to the trend.

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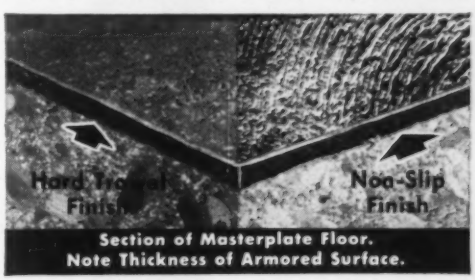

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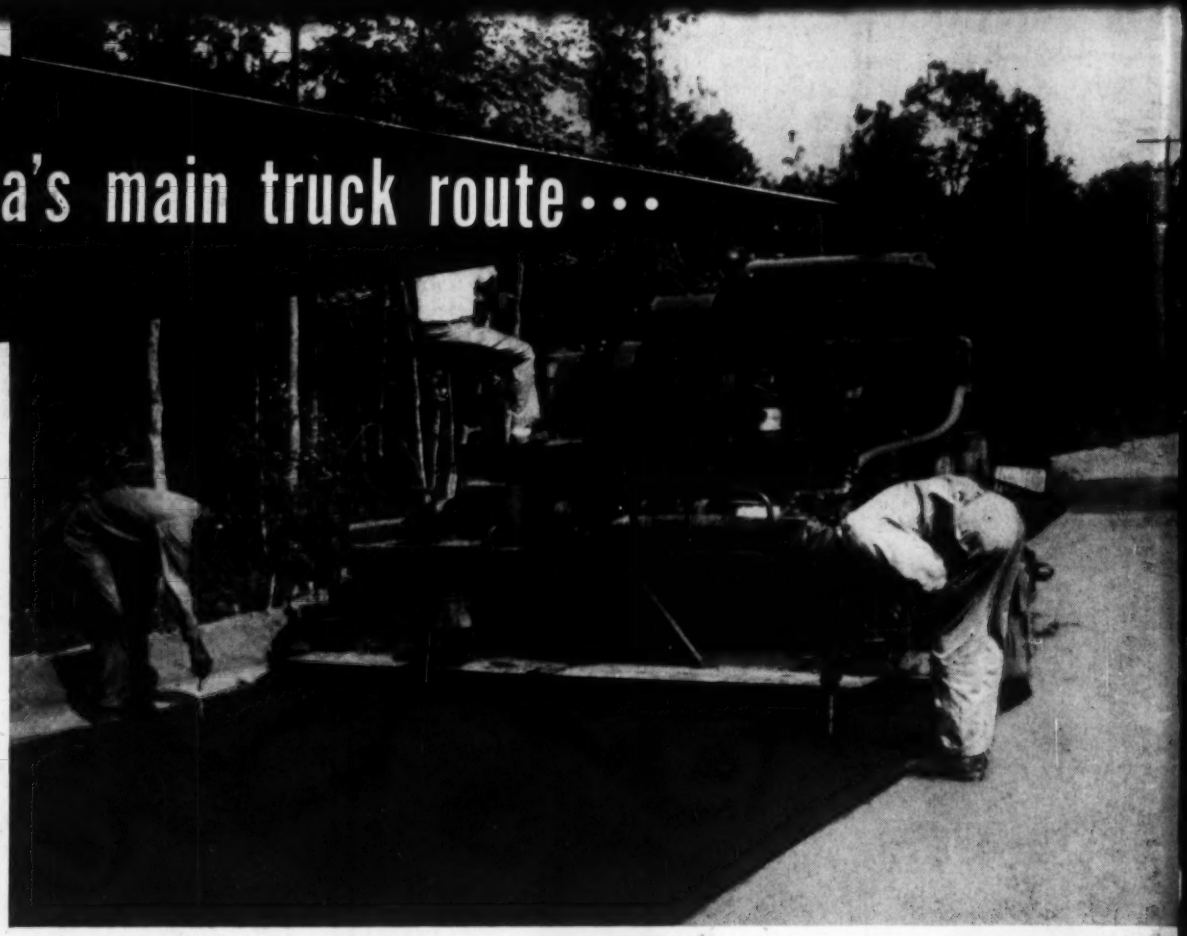

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The accompanying photographs show the construction of a new lane which parallels the existing route south of Petersburg. Plant-mixed Texaco Sand Asphalt was used for both base and wearing surface in this project. The base, 5½ inches thick, was constructed in three courses, on which the surface was laid to a thickness of 1½ inches. An 8-inch sand-clay subbase supports the Texaco Sand Asphalt pavement.

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